

This Page Intentionally Left blank

University of Southern Queensland
Faculty of Engineering and Surveying

Project Management
A Guide from start to finish
For
BHPBilliton Iron Ore
Engineering Services Dept.
Port Hedland

A dissertation submitted by

Paul Edward Young

in fulfilment of the requirements of

Courses ENG4111 and 4112 Research Project

towards the degree of

Bachelor of Engineering (Civil)

Submitted November 2004

ABSTRACT

The Engineering Projects Department for BHPBilliton's Iron Ore processing facility located in Port Hedland WA is responsible for delivering capital projects up to \$3 million in value and administering the site capital program to the value of up \$60 million. The department's primary function is to implement growth and sustaining capital projects to site based stakeholders.

The department has traditionally been a poor performer in delivering successful projects when scored against the following criteria:

- Project schedule and planning.
- Project budgetary constraints.
- Project Acceptance by stakeholders.
- Project Reporting and stakeholders liaison.
- Poor Resource planning.
- Failure to complete projects.

It is considered that a contributor to the root cause of these project failures is due to the lack of a defined process for progressing projects.

This dissertation seeks to define, map and test a process to successfully deliver projects by:

- Researching Information on specialist project management processes.
- Critically evaluate project management tools and processes with respect to inclusion into a project management manual.
- Design a project manual process that provides the user with tools and processes to complete a project that will ensure the user complies with BHPBilliton's Iron Ore financial and commercial governance requirements and delivers successful projects.
- Design a suite of tools to apply to the project management process including templates, checklists and process flow diagrams.
- Provide a user-friendly guide to the project management process.

It will be reported at the conclusion of this dissertation on whether the process developed as a result of this paper has succeeded in improving the delivery of successful projects for the engineering services department.

Limitations of Use

The Council of the University of Southern Queensland, its faculty of Engineering and Surveying, and the staff of the University of Southern Queensland, do not accept and responsibility for the truth, accuracy or completeness of material contained within or associated with this dissertation.

Persons using all or any part of this material do so at their own risk, and not at the risk of the Council of the University of Southern Queensland, its faculty of Engineering and Surveying, and the staff of the University of Southern Queensland

This dissertation reports an educational exercise and has no purpose or validity beyond this exercise. The sole purpose of the course pair entitled 'Research Project' is to contribute to the overall education within the student's chosen degree program. This document, the associated hardware, software, drawings, and other material set out in the associated appendices should not be used for any other purpose: if they are so used, it is entirely at the risk of the user.

Prof G Baker

Dean

Faculty of Engineering and Surveying

Certification

I certify that the ideas, designs and experimental work, results, analyses and conclusions set out in this dissertation are entirely my own effort, except where otherwise indicated and acknowledged.

I further certify that the work is original and has not been previously submitted for assessment in any other course or institution, except where specifically stated.

Paul Edward Young

Student Number: 0011021314

Signature

Date

ACKNOWLEDGMENTS

I would like to acknowledge the help and assistance of my initial supervisor Jo Devine and subsequent supervisor Dave Wood. I would also like to acknowledge my associate supervisor Michael Shenton whose advice and encouragement was much appreciated.

I acknowledge the support and understanding of my wife Trona and children Blake, Rochelle and Airlia who have sacrificed much to enable me to produce this document.

Table of Contents

Abstract	iii
Acknowledgments	vi
List of Figures	xi
List of Tables	xii
CHAPTER 1	1
Introduction	1
1.1 Introduction, Objectives, Dissertation Overview	1
1.2 Dissertation Overview	2
CHAPTER 2	3
Background Of Engineering Services	3
2.1 Chapter Overview	3
2.2 General Information	3
2.3 History	4
2.3.1 The Department lacking a Culture of Project Management.	4
2.3.2 Inadequate Project Management skills within the department.	5
2.3.3 Lack of a documented project management process.	5
2.3.4 Lack of business governance requirements met.	6
2.3.5 Client Feedback	6
2.4 Chapter Summary	7
CHAPTER 3	8
Literature Review	8
3.1 Chapter Overview	8
3.2 Literature Review	8
3.3 Key Learning's	9
3.3.1 Project Definition	9

3.3.2	Checklists	10
3.3.3	Project Definition and Scope of Work	10
3.3.4	Templates and Pro-Formas	11
3.3.5	Risk Management	11
3.3.6	Secondary Points	11
3.3.7	Common project Problems	12
3.4	Chapter Summary	13
Chapter 4		14
Methodology		14
4.1	Chapter Overview	14
4.2	Process Design	14
4.3	Work breakdown Structure	15
4.4	Project process Checklist	16
4.5	Process review	16
4.6	Project Process	17
4.7	Chapter Summary	18
CHAPTER 5		22
The Manual		22
5.1	Chapter Overview	22
5.2	Whole of Project Process Requirements	23
5.2.1	Whole of Project Process Requirements overview	23
5.3	Concept Stage (Tollgate 1)	28
5.3.1	Concept Stage Overview	28
5.3.2	Description of Templates and Requirements for Concept Stage	31
5.4	Definition and Planning Stage (Tollgate 1)	34
5.4.1	Definition and Planning Stage Overview	34
5.4.2	Description of Templates and Requirements for Definition and Planning Stage	39
5.5	Detail design and Planning Stage (Tollgate 3).	43
5.5.1	Detail Design and Planning Stage overview.	43
5.5.2	Description of Templates and Requirements for Detail design and Planning Stage	46
5.6	Tender, Contract and Award Stage (Tollgate 4)	50
5.6.1	Tender Contract and Award Stage overview	50
5.6.2	Description of Templates and Requirements for Tender, Contract and Award Stage	53
5.7	Construction Stage (Tollgate 5)	62

5.6.1	Construction Stage overview	62
5.6.3	Description of Templates and Requirements for Construction Stage	65
5.8	Commissioning, Handover and Project close Out Stage (Tollgate 6)	69
5.8.1	Commissioning, Handover and Project Close Out Overview	69
5.8.2	Description of Templates and Requirements for Commissioning, Handover and Closeout Stage	72
5.9	Chapter Summary	76
CHAPTER 6		77
Case Studies		77
6.1	Chapter overview	77
6.2	Testing the process	78
6.2.1	Concept Stage	78
6.2.2	Definition and Planning stage	80
6.2.3	Detail Design and Planning stage	82
6.2.4	Tender ,Contract and Award stage	84
6.2.5	Construction	85
6.2.6	Commissioning, Handover and Close out	86
6.3	Chapter Summary	87
CHAPTER 7		88
Discussion		88
7.1	Discussion	88
CHAPTER 8		90
Conclusions and Further Work		90
8.1	Achievement of Project Objectives	90
8.2	Further work	91
REFERENCES		93
Appendix A		95
	Project Specification	95
Appendix B		97

Client survey	97
Appendix C	98
Project Process Templates	98
Appendix C	119
Concept (Tollgate 1) Templates	119
Appendix D	142
Definition and Planning (Tollgate 2) Templates	142
Appendix E	169
Detail Design and Planning (Tollgate 3) Templates	169
Appendix F	184
Tender, Contract and Award (Tollgate 4) Templates	184
Appendix G	225
Construction (Tollgate 5) Templates	225
Appendix H	240
Commissioning, Handover and Close Out (Tollgate 6) Templates	240

List of Figures

4.1	Process map Graphical Overview.....	20
4.2	Process map Graphical overview (cont).	21
5.1	Shows a simplified graphical overview of the Project management process. The six boxes represent key tollgate stages taken to progress a project from conceptual idea to project close out. The manual details the required steps in each stage.	23
5.2	Concept (Tollgate 1) - Simplified Overview.	28
5.3	Process Overview of the Concept Stage.	30
5.4	Definition and Planning (Tollgate 2) Simplified Overview.....	34
5.5	Process Overview of the Definition and Planning Stage.	38
5.6	Detail Design and Planning (Tollgate 3) - Simplified process	43
5.7	Process Overview of the Detail Design and Planning Stage.....	45
5.8	Tender, Contract and Award (Tollgate 4) – Simplified Process	50
5.9	Process Overview of the Tender, Contract and Award stage.....	52
5.10	Construction (Tollgate 5) – Simplified Process	62
5.11	Process Overview of the Construction stage.....	64
5.12	Commissioning, Handover and Project Close Out (Tollgate 6) – Simplified process...69	
5.13	Process overview of the Commissioning, Handover and Close Out stage	71

List of Tables

4.1	Tabulated Process Overview	19
5.1	Process Templates	24
5.2	Concept Stage Templates	29
5.3	Definition and Planning Stage Templates	37
5.4	Detail Design and Planning Stage templates	44
5.5	Tender, Contract and Award Stage Templates	51
5.6	Guide to contract documentation requirements	56
5.7	Construction Stage Templates	63
5.8	Commissioning, Handover and Close Out Templates	70
6.1	Revised TS205 Sump Project costing	82

CHAPTER 1

INTRODUCTION

1.1 Introduction, Objectives, Dissertation Overview

Mechanical, Civil and Electrical Engineering have over the years been the dominant identifiable streams of Engineering historically making up the study “disciplines” offered at universities world wide. Contemporary universities have recently introduced less traditional majors such as Agriculture, Environmental, Computing, Mechatronic and so forth. However the one common denominator regarding all the engineering disciplines is that irrespective of your chosen major, modern engineering professionals will undoubtedly be involved in a “Project”

Many texts refer to Project Management or Project Engineering as a role that must be mastered in order to be a successful contemporary engineer. This is because most Engineering activities can be defined as a project and in fact Lewis a United States Project Manager guru describes that most company activities can be described as a project.

The Engineering Services department for BHPBilliton Iron Ore is a multidiscipline group of Engineers whose primary role is to complete projects that sustain and improve the BHPBilliton Iron Ore Port Hedland Shiploading facility. The department currently does not have a documented process that outlines the steps and requirements to progress a project from start to finish. It is perceived that this lack of a defined process contributes to a high level of project failure that manifests itself in budgetary overruns, scope creep, scheduling failures, client handover issues and never ending projects. All indicators are that the project process currently employed by the department is failing to deliver the required outcomes.

An additional source of frustration is the ever-changing templates and proformas used by different staff all storing documents in obscure electronic and hardcopy locations. This

indicates a lack of control and certainty over the process while making mid project handover almost impossible to manage.

This dissertation will attempt to define, document and test a project process that can be used by the department in order to improve the success rate of projects undertaken. If successful, the manual can be used as a training document for new starters and as a guide to senior staff. It will also address the issues of shopfront inconsistency within the department.

Development and compliance with a process will offer the Engineering Services department the following benefits:

- I. A documented auditable process
- II. Compliancy to BHPBilliton Iron Ore policies and governance requirements.
- III. A Consistent and professional shopfront to all department clients.
- IV. A department training guide for department new starters.
- V. An ongoing reference guide to all staff.

1.2 Dissertation Overview

This dissertation is organized as follows:

Chapter 2 articulates the background of the Engineering Services department and the problems currently experienced in delivering successful projects.

Chapter 3 provides a Literature review of project management as an engineering science.

Chapter 4 outlines the methodology used to define and test the project process that will be developed as an output of the dissertation.

Chapter 5 presents a brief description of the project process, templates and forms developed as a result of this dissertation.

Chapter 6 looks at three case studies actually being progressed using the developed process, templates and proformas.

Chapter 7 discusses the outcome of the case studies.

Chapter 8 concludes the dissertation highlighting key learning's and suggesting the direction for further work.

Chapter 2

Background Of Engineering Services

2.1 Chapter Overview

This chapter explores the background and history of the BHPBilliton Engineering Services department and its problems in delivering successful projects to clients. It attempts to identify the possible causes of problems with the delivery of Capital projects. It also reports on the results of a survey undertaken as part of the research for this project.

2.2 General Information

BHPBilliton owns and operates Iron Ore mines in the remote Pilbara region of North Western Australia. Iron Ore is mined from six mines 400km inland from the coast where it undergoes primary crushing and screening processes. The ore is then railed via two major rail lines to the gigantic Nelson Point Shiploading facility in Port Hedland where in a spider web of conveyors it undergoes further crushing and screening to satisfy strict client specifications. The ore is then loaded onto large ocean going vessels for export to countries around the globe. In the financial year ending June 2003 80.6 million tonnes of Iron Ore were exported to ports around the world. The business contributes \$300 million annually in government royalties and directly and indirectly employs thousands of employees.

The Engineering Services Department for BHPBilliton's Nelson Point Shiploading facility located in Port Hedland WA is responsible for delivering capital projects up to \$3 million in value and administering the site capital program to the value of up \$60 million. The objective of implementing this capital program is to sustain and increase the company's output of Iron Ore to an ever-growing global market. Engineering services delivers these projects on behalf site based customers. These site-based customers include:

- Shiploading – Where the ore is loaded onto ships.
- Crushing; - Where the ore is further crushed and screened
- Rail – Rail the Ore in from s separate mines
- Health, Safety and Environment
- Public Affairs
- Finucane Island – 30 year old original Shiploading facility
- Housing – Administers company housing policy.

2.3 History

The Engineering Services department is perceived to be a poor performer in delivering successful projects when scored against the following criteria:

- Timely Project completion schedule.
- Adherence to project budgetary constraints.
- Project Acceptance by client.
- Project Reporting and client liaison.
- Resource planning.
- Failure to adequately expend the allotted capital program.

It is my opinion that the root cause of this continued poor performance of the department is primarily due to the following factors:

2.3.1 The Department lacking a Culture of Project Management.

The Engineering Services department does not exhibit a business culture of professional project management. Professional engineers within the department tend to consider themselves to be discipline engineers such as mechanical or electrical, rather than project engineers. Project Engineering is a discipline of engineering similar to

Mechanical/Electrical and Structural engineering however existing professional staff do not appreciate this important delineation, nor is this distinction promoted within the department. The consequence of this is that the department has never properly developed suitable project management procedures and guidelines.

2.3.2 Inadequate Project Management skills within the department.

Limited focus by department leaders neglecting training department staff in project management techniques have contributed to a lack of skilled project managers. Due to the failure to develop a department project management culture as noted above, most of the department staff are poorly trained in project management techniques. Hence most projects suffer common failures mechanisms associated with project failure, such as scope creep, undefined project objectives, poor project planning, poor client liaison, lack of project monitoring, undesired side effects and project objective failure (Lewis, 2000, p277).

2.3.3 Lack of a documented project management process.

The department does not have a documented process that details the required steps to progress a project from idea conception to implementation and handover. As a consequence individual project managers have developed their own project procedures resulting in inconsistencies within the department, poor governance of processes and an inconsistent shop front window to the departments clients. Longer-term project managers are also required to provide pseudo on the job training to new staff and graduate engineers, which is both time consuming and frustrating to existing staff. Hence bad habits and inconsistencies are passed on and certain vital information can be deliberately withheld.

Project file documentation is inconsistent and vital historical data is lost. An example of lost data is an Asbestos paint survey completed by a specialized consultant for BHPBIO approximately 10 years ago. This report has been lost to BHPBIO. The report cost in excess of one million dollars to prepare.

2.3.4 Lack of business governance requirements met.

BHPBilliton is the worlds largest global resource company with annual profits around US\$5129 million pa. With this size company comes a requirement to demonstrate suitable governance relating to the management of growth and sustaining capital. The company has guidelines that officers must adhere to. In particular, the corporate office of the CEO has issued a number of broad strategic type documents that provide guidance in the delivery of investment capital. The development of a Project Management Manual will assist the Nelson Point Port and Rail business sectors comply with these guidelines.

2.3.5 Client Feedback

As part of the planning component of this dissertation, comments and feedback were sought from the Engineering Services department key customers as noted above in section 2.2. A summary of the results is noted below. The actual content of the survey is included as appendix 2.

65% indicated they believed that the department was a poor performer.

60% indicated that the services provided by engineering Services were below their minimum expectations.

35% stated that projects delivered often did not satisfy the required objective.

75% believed that they were not adequately consulted during the project.

65% considered that the implementation process of projects could be improved.

Clearly, department customers are unhappy with the level of performance provided by Engineering Services and improvements are required. In addition continual failure by the Iron Ore business to deliver their budgeted capital programme is a costant source of frustration to BHPBilliton Iron Ores upper level management particularly when it realizes that it is continually losing the opportunity to improve its profitability and decrease recognized safety risks by not expending its allocated capital funds.

2.4 Chapter Summary

This chapter gave a brief outline of the background of the BHPBIO Engineering services department and investigated the possible causes of the problems associated with the BHPBilliton Engineering Services department. It recommended the following actions to improve the delivery of projects, these were:

- i. Promote a project management culture within the group.
- ii. Provide Project management training within the group.
- iii. Develop a documented Project Management process.

The third recommendation is the subject of this dissertation.

In addition it reported on the outcomes of a client satisfaction survey, which confirmed that the department is perceived to be delivering projects poorly.

Chapter 3

Literature Review

3.1 Chapter Overview

This chapter discusses the available literature with respect to project management processes and methodologies and outlines some of the key learning's resulting from the review.

3.2 Literature Review

The available pool of resources for this topic is large, many reference books are dedicated to the art and science of Project Management and many are available at technical bookshops. Local libraries also have a reasonable number of books available, even in remote Port Hedland. The World Wide Web, while a somewhat inconsistent resource for future referencing provides many resources. For example a "Google" search on the term "Project Management manual" results in 1550 sites.

The following texts were purchased for reference whilst preparing the manual:

- The Project Managers Partner – A step-by-step guide to Project Management – M. Greer.
- Project Management - D. Lock.
- The Project Managers Desk reference – J. P. Lewis.
- Project Management Memory Jogger – P. Martin & K. Tate.
- Project Management and Teamwork – K. Smith.

A number of local library books were also referenced and utilized for research and literature reviews while BHPBilliton's global guidelines and tools were referenced from

within the corporate BHPBilliton office. Although these guidelines particularly addressed large \$10 mil + expansion projects, which is a significantly larger dollar value than the projects this dissertation targets, the information was relevant and added to the general understanding of the topic during the literature review.

3.3 Key Learning's

Reviewing the available literature and information relating to project management, some key common themes quickly emerged and were consistent throughout the review. That is, the majority of the reviewed literature appeared to break a project down into 4-5 key components. These were usually:

- Concept
- Pre-Feasibility
- Detail design and Planning.
- Implementation
- Construction Progress /Monitoring
- Commissioning/handover.

There is no valid reason to develop a project management manual outside the general guidelines listed above. It is expected that the above key headings will therefore form the basis of the dissertation. This will allow the use of the manual within different organizations.

3.3.1 Project Definition

Other key discoveries that were consistent throughout the review was the definition of a project and that the project must have a set start and finish date. Lewis states that the definition of a project is “A one-time, multitask job that has clearly defined starting and ending dates, a specific scope of work to be performed, a budget and a specified level of

performance to be achieved” (Lewis, 1999, P4). It is vital that the project manager remember this point lest he fall victim to the dreaded never-ending project syndrome. A sure fire way to become a maintenance engineer. Another definition of a project from J. M. Juran (1989) is “A project is a problem scheduled for solution (Lewis, 1999, P5). Once again this is emphasizing that a project is a one off activity and has scheduled start and finish dates.

3.3.2 Checklists

Checklists were also emphasized in many of the texts as a tool to ensure that the suggested process and steps recommended were in fact completed. The checklists tools appear to be a valid method to close off each phase of a project prior to moving to the next. Michael Greer makes significant use of them in his text (Greer, 2001) and Lock suggests that they can be used a method of ensuring that nothing is forgotten (Lock, 1998, p47).

3.3.3 Project Definition and Scope of Work

The importance of problem definition, scope definition and stakeholder sign off is highlighted in the texts as a means of avoiding common pitfalls and causes of project failure. Many times a project manager, smiling broadly, proudly hands over a magnificent piece of a process, software or equipment only to be told by the end user that “That is not what we asked for – take it back and try again” Here the project manager has not identified the problem at the very start of the project and the end project result can be labelled either a “successful failure” or a “failed success” Much work can be wasted if the project manager does not sit down with his client to determine exactly what the project objectives are, what the problem is and what exactly the client is expecting as a deliverable.

3.3.4 Templates and Pro-Formas

The use of templates and pro-formas are an obvious benefit of developing a project management process. These are forms that are pre-prepared in a consistent pre-emptive format so that the project manager is prompted for the right information and does not waste time formatting documents and forms that will be required under the process. This approach also provides a consistent approach for all projects and ensures the correct information is presented and all required tasks are completed for all projects.

3.3.5 Risk Management

Risk management techniques and control systems are a growing industry in the project management world. Questions such as “What can go wrong? Who is working against/with us? How will we control budget systems?, How will we minimize the chances of the project going bad? Risk assessment and risk management techniques will be addressed in our process as a means to prevent a project going of the rails.

3.3.6 Secondary Points

Other secondary requirements that may be included in a project management manual are:

- I. Resource analysis – An analysis of the resource requirements of a project
- II. Communications planning – A plan detailing who is informed of particular information at regular intervals.
- III. Quality management planning – A method of ensuring work completed is to an acceptable standard.
- IV. Change management control – A method of managing change throughout the project.

3.3.7 Common project Problems

If the intent of this project is to produce a tool to assist BHPBilliton staff in successfully delivering projects then it is important to define what is a successful project. On the other hand it is equally important to research and determine what is a project failure and what are the common causes of project failure in order that we may learn from known failures and not repeat them.

Common problems highlighted by the literature review were:

- Many projects are ill defined.
- Projects have no concrete deliverable or objective.
- Projects exceeding their approved budget
- Projects undergo scope change/creep resulting in unapproved deliverables.
- Late delivery of projects.
- Poor handover.
- No stakeholder involvement and sign off throughout the course of a project.
- No independent review of projects during their development phase.

(Lock, 1998, P120, Lewis, 2000, P291)

Many of the texts highlight how ill defined scope specifications or scope creep can cause the total failure of a project. Lock (1998, P121) describes an excellent example of a radio manufacturer whose project to deliver a small cheap low quality portable music box to the market was essentially hijacked by a technical boffin, who continually changed components to improve the performance, tweak this, tweak that always for just a minor increase in price, In the end a great little music box was produced that hit the market 4 months to late, the development budget was exceeded, the unit was double the price of its competitors and was discontinued. The technical boffin had not kept to his original low cost specifications but more importantly his changes had not been managed or controlled by the project manager. The project manager would be responsible for the project failure due to his failure to control and monitor the development process.

3.4 Chapter Summary

This chapter discussed the outcome of a literature review and it is clear that many authors and process designers have undertaken the task of developing project management systems and procedures and many broad strategic processes have been previously developed. This project will take the broad strategic processes already developed in the literature and drill them down so that BHPBilliton Nelson Point Engineering Services department can use them. The deliverable will be a manual that provides all the required forms and templates, informs the reader of the minimum requirements of project work within the department and provides new starters with all the information to commence projects on their first day.

Chapter 4

Methodology

4.1 Chapter Overview

This chapter discusses the method taken to develop the project manual process design and the general outcomes of researching the topic of project management.

4.2 Process Design

The design of a generic Project Management process is not a new breakthrough in Engineering, there exists many reference books that refer to project management as a science. What makes this document unique is that it results in the development of a training guide come new starter manual for the BHPBilliton Engineering Services Department.

In developing a process for the successful completion of projects, it is apparent that there is a general process that is commonly used in project engineering. That is, The outcome of the literature completed in chapter 3 gave the following broad stages of a project:

- Concept
- Definition and Planning
- Detail design and Planning.
- Implementation
- Construction Progress /Monitoring
- Commissioning/handover.

The approach taken in this project shall be to provide an introductory preamble for the reader describing in broad terms the project engineering process that is required. It will broadly describe each phase of the process listed above and reiterate that the process

detailed within the manual is required by BHPBilliton's governance requirements and that compliance is mandatory. It will explain that all projects are different and that the project manager requires judgment in deciding to what level of detail is required. For example a small procurement item may not require all sections of the project manual be completed, they will however be considered even if it is noted that the section is not applicable. This introductory section will be located at the beginning of the manual but later be relocated to the back of the manual at a later date when it is no longer required as the actual manual component becomes the project engineers live and dynamic reference document.

4.3 Work breakdown Structure

The next stage will involve separating the manual into the above listed sections with each section having its own secondary pre-ambule before leading the reader into a chronological list of what is required under that section.

Each requirement will then have a description and a template form/layout that will illustrate clearly what is required and how it is to be completed. The type of documents included may be standard cost estimate sheets, project scope statements, environmental consideration forms, and commercial requirements eg tendering processes. Some sections may refer to written documented procedures located within external departments or even external businesses.

Templates contained within the manual have been either developed new, existing modified templates or unchanged existing templates. The existing templates that have been included in this manual are templates that have been residing at various locations within the department. These locations varied from individuals hard drives, the department server hard drive, filing cabinets, old typed works procedures and from the BHPBilliton Project framework manual.

At the conclusion of each section a checklist will require completion prior to progressing to the next phase. A vital part of that checklist will be stakeholder sign off and approval to proceed.

It is hoped that the author will engage the advice of an IT professional who will assist in developing a Project Manual CD with forms and templates hot linked out of the manual to the relevant templates and pro-formas.

Each section will be researched and related to BHPBilliton's governance requirements. Information obtained from the literature review will be included whilst developing each section. At this point of the Project, from information obtained from the literature review and in consideration of the requirements of BHPBilliton iron Ore. Table 4.1 – Process Overview represents the sections and subsections of the manual. Following Figure 4.1, Figure 4.2 illustrates a graphical process overview that has been developed and will form the beginnings of the project manual.

4.4 Project process Checklist

Overriding the complete project process will be the primary Project checklist that will be the primary guide for the user in progressing the project. This key document is a checklist that is attached at the beginning of the project file and has a check box for each required activity to progress a project within BHPB Iron Ore. It essentially describes the project process in a five page checklist

4.5 Process review

Reviews were undertaken with my Associate Supervisor Michael Shenton at the following stages:

- 15% completion.
- 85% completion.
- 100% completion.

My supervisor Dave Wood undertook a draft review at 95% Draft stage

4.6 Project Process

The output of the developed manual can be shown in tabulated form in Table 4.1. Table 4.1 tabulates the process from Concept to Handover and lists some of the engineering activities involved and documents required in order to complete a project. Figures 4.1 to 4.2 graphically illustrate the process.

4.7 Chapter Summary

This chapter looked at breaking the project process into smaller parts called a work breakdown structure and noted that Associate Supervisor Michael Shenton would assist in undertaking reviews at points along the manual.

Table 4.1 – Tabulated Process Overview

Tollgate 1 CONCEPT	Tollgate 2 DEFINITION and PLANNING	Tollgate 3 DETAIL DESIGN & PLANNING	Tollgate 4 TENDER, CONTRACT and AWARD	Tollgate 5 CONSTRUCTION	Tollgate 6 COMMISSIONING, HANDOVER & CLOSE OUT
<ul style="list-style-type: none"> • Job request • Define Project scope. • Project Justification. • Alternatives. • Preliminary cost +/- 30%. • Preliminary Schedule. • Preliminary Risk Assessment. • Preliminary financial analysis. • Prelim environmental Review • Project team. • Strategic Fit. • Line area review • Approval to proceed. 	<ul style="list-style-type: none"> • Confirm project Scope • Preliminary Project execution Plan. • Objectives • KPI's • Work breakdown structure. • Project scope of Work. • Project team. • Implementation strategy. • Commercial processes • Project assumptions • Impacts • Detailed schedule • Project risk mitigation • Organization structure • Detailed Hazard analysis • Detailed cost estimate. • Line area review. • Peer review • Environmental/aboriginal review • Approval for design funds. 	<ul style="list-style-type: none"> • Confirm project Scope • Design Specs. • Detail design documentation/drawing. • Budget quotes • Detailed cost estimate +/-10%. • Detailed Schedule • Design review • Designing for safety review. • Cash flow forecast • Detailed project risk assessment • Detailed Hazard analysis. • Line area review. • Functional specification • Equipment/spares list. • Approval to Construct Capital funds 	<p><u>Commercial strategy</u></p> <ul style="list-style-type: none"> • Tender documents. • Contract strategy. • Scope of Work • Authority to proceed to Market. • Potential Tenderers • Commercial Risk Mitigation strategies. <p><u>Award contract</u></p> <ul style="list-style-type: none"> • Assess tender • Pre award meeting • Clarification/negotiation. • KT analysis. • Environmental record • Authority to proceed to Contract. • Start and finish dates 	<ul style="list-style-type: none"> • Safety management plan • Quality Management plan • Environmental management plan. • Shutdown planning. • Permit to work • Excavation permits • Prestart Meeting • Safety inspections • Variations • Progress meetings • 50% Safety review. • 50% Environmental review. • Client progress reports • Cash flow reforecast • Site supervisor. 	<ul style="list-style-type: none"> • Handover documentation. • Commissioning procedures. • Notification to make Live. • Detail work procedures • Bill of materials • Safety review. • Operations/maintenance handover sign off • Commissioning records. • Training requirements. • Warranty management. • Documentation <p><u>Close out</u></p> <ul style="list-style-type: none"> • Project review. • Benefits capture. • Archiving. • Close out project

Figure 4.1 – Process map Graphical Overview

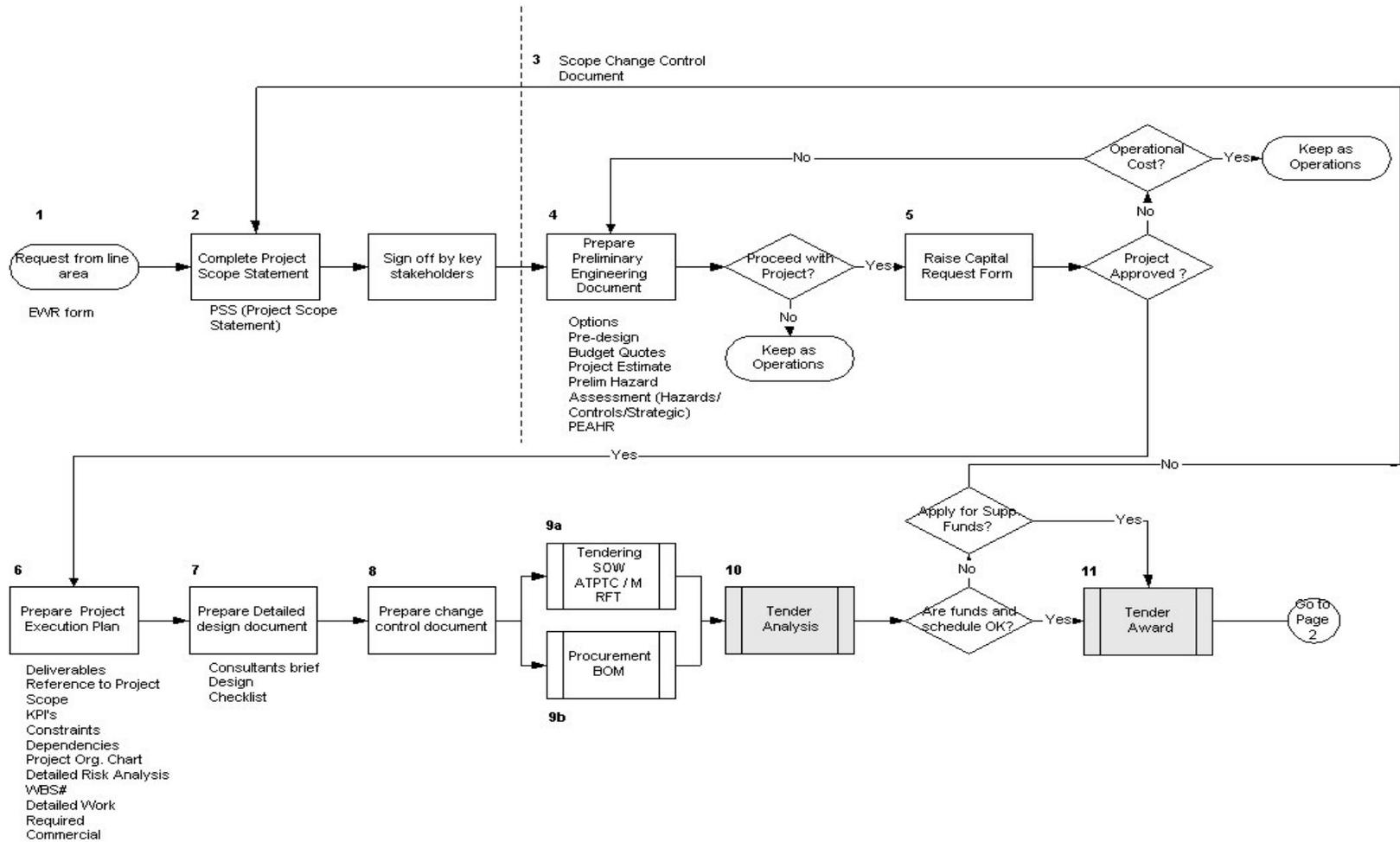
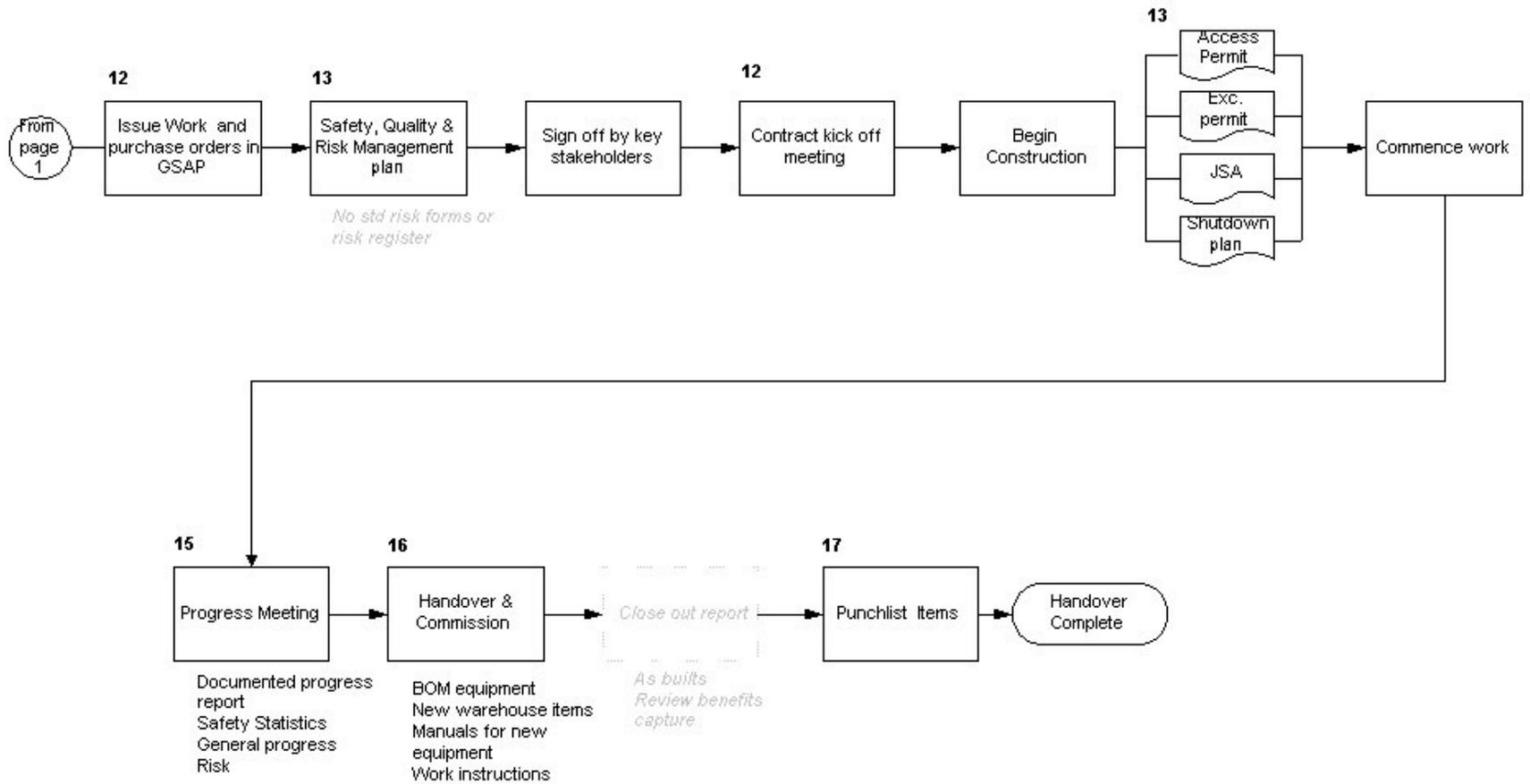


Figure 4.2 – Process map Graphical Overview (Cont)



Chapter 5

The Manual

5.1 Chapter Overview

This chapter outlines the complete project manual process from start to finish it includes a graphical process map, a list of templates and a description for the use of each template for each stage of the process. The stages of the project process are;

- I. Concept – Tollgate 1
- II. Definition and Planning – Tollgate 2
- III. Detail design and Planning – Tollgate 3
- IV. Tender, Contract and award – Tollgate 4
- V. Construction – Tollgate 5
- VI. Commissioning, Handover and Close Out – Tollgate 6

The term Tollgate refers to the need to pass a set of requirements before preceding to the next stage. To pass a tollgate the project engineer will be required to satisfy client requirements, a review committee, peer reviews and other business governance requirements. If a tollgate cannot be passed, then it will be likely that the project cannot be progressed.

The first chapter section 5.2 describes the templates used throughout the whole project process. Section 5.3 moves onto the Concept stage until the Commissioning, Handover and Close out stage are reached at section 5.8.

5.2 Whole of Project Process Requirements

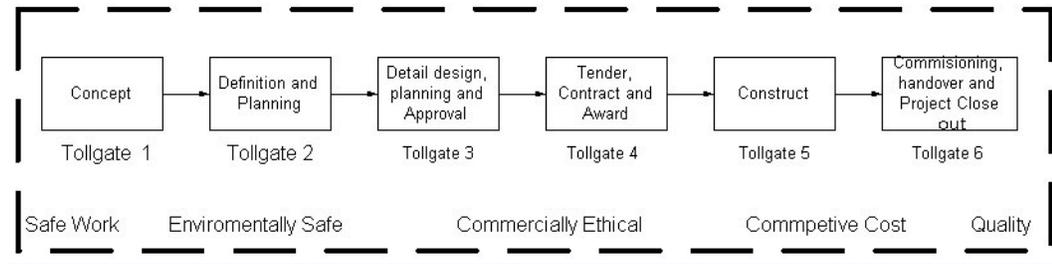


Fig 5.1 Shows a simplified graphical overview of the Project management process. The six boxes represent key tollgate stages taken to progress a project from conceptual idea to project close out. This manual details the required steps in each stage.

5.2.1 Whole of Project Process Requirements overview

This initial section introduces those documents that may be used in every stage of a project and cannot necessarily be limited to one stage only.

It details how the department expects to see project files arranged and presented and the requirements for electronic filing of project documents on the department server.

It presents some standard forms for file notes and explains the process for handling project change, a common cause of project failure.

It introduces BHPBIO's primary risk ranking documents and other miscellaneous forms.

It also introduces the Project engineer to the BHPBIO website where site safety rules, Contractor safety management manual and safe work procedures are stored. Reference only are made to these documents due the dynamic and ever changing status of these documents.

Table 5.1 – Process Templates.

Template No.	Template Title
PRO001	Project File Checklist
PRO002	Project Filing Structure
PRO003	Project File Lever Arch Label
PRO004	Project File Contents Sheet
PRO005	Project File Summary Sheet
PRO006	Project File Note
PRO007	EWRM Guide
PRO008	EWRM Ranking and Measurement
PRO009	EWRM Simple Risk Assessment
PRO010	EWRM Risk Assessment Record Sheet
PRO011	Project Scope change Request
PRO012	Project Scope Change Register
PRO013	Document No Request Form
PRO014	Project Progress report
PRO015	Project Meeting Agenda/Minutes
PRO016	BHPBIO Risk Ranking Guide

Refer to Appendix C for Process templates printout

5.2.2 Description of Templates and Requirements used throughout the project process

5.2.2.1 Standard Drawings and Specifications

BHPBIO have a number of standard specifications and drawings that are to be used when undertaking project work.

A list of all standard drawings, specifications and Standard Engineering Practices (SEP's) are included in Specification 000-G-0014 All drawings, specification and SEP's are stored on the BHPBIO document storage web site.

5.2.2.2 Project Checklist PRO001

This document is the process checklist sheet and is an important document in that it is a checklist that is included in the project file after the project summary sheet and is used as a guide to show what steps of the project are to be completed. The Project engineer simply ticks of each item as it is completed or notes NA if not applicable. This document is probably the most important document that was produced in this dissertation as it documents line by line the project process requirements in the check listed format

5.2.2.3 Project Filing Structure PRO002

Electronically, the directory for soft copy documents and data storage will be on a data storage server called "departments on Ironhed-file server" and will be: H:/Engineering Services/Projects/non-electrical/....

All projects are to be stored on this directory and shall follow the subdirectory headings as noted in Template PRO001.

5.2.2.4 Lever Arch label PRO003

Project File Contents Sheet PRO004

Project file Summary Sheet PRO005

These documents are self explanatory, PRO002 is the Lever arch Binder label, PRO003, the Project file contents sheet is printed out and attached to the front of the Project File while the project summary sheet PRO004 is the first document after the contents sheet.

5.2.2.5 Project File Note PRO006

This is simply a standard file note template for making file notes.

5.2.2.6 EWRM Guide PRO007

EWRM Ranking and Measurement PRO008

EWRM Simple Risk Assessment PRO009

EWRM Risk Assessment Record Sheet PRO010

BHPBIO Risk Ranking Guide PRO017

These documents are the BHPBilliton corporate Risk assessment strategy tools used for measuring risk. Template PRO010 is used for documenting the risk.

For more detailed site based risk use the BHPBIO Risk Ranking Guide PRO017. The PRO017 tool is more relevant for site-based use.

5.2.2.7 Project Scope change Request PRO011

Project Scope Change Register PRO012

These documents represent an important part of the Project control requirements of a project in that they assist the Project Engineer in managing project change.

Project Change is a major contributor to project failure, failing to manage change appropriately can result in budget and schedule being placed under pressure. Almost all projects will receive some element of change in the deliverables usually at the request of the client who will expect changes to be incorporated but with no impact on cost or schedule. It is important to have agreement with the client that the requested change can be accommodated but it will have an impact on the budget and schedule. If the project has had approved any major changes will require representing to the capital committee for re-approval.

The project Engineer is required to have the client sign off on any change on template PRO010 and a register of all project changes is to be maintained on template PRO011.

5.2.2.8 Document Number Request Form PRO013

Many documents produced as part of the project process are required to be numbered signed off and submitted to the BHPBIO document control office in Perth. This form serves as a guide for obtaining the document number. SEP 15 gives a detailed guide to the document numbering process.

5.2.2.9 Project Progress Report PRO014

A common complaint from project stakeholders is that the project often appears to be forgotten about. Quite often this is not the case, as tendering and designing activities are progressing. To prevent this type of project failure it is vital that a communications plan is developed. A compulsory component of that communications plan is monthly project Progress Reports that communicate the following data;

- Work completed to date
- Work planned to be completed in the next month
- Forecast project completion date
- Forecast final Budget
- Any other pertinent information

The project progress reports are sent to the primary and secondary stakeholders and to the relevant Engineering services discipline Superintendent.

5.2.2.10 Project Agenda/Minutes PRO015

Typical template to be used for project meeting agendas and minutes

5.3 Concept Stage (Tollgate 1)

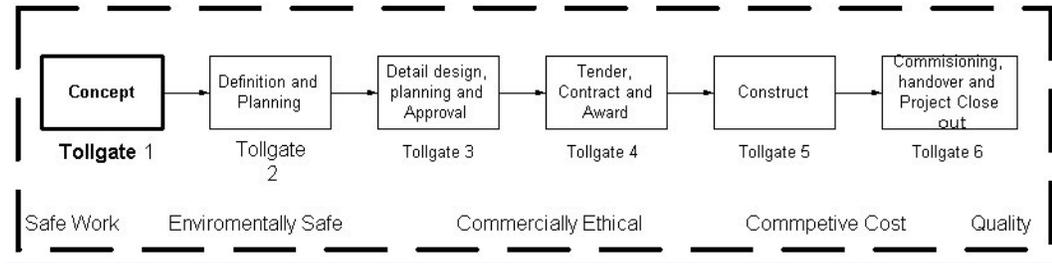


Fig 5.2 Concept (Tollgate 1) – Simplified Overview

5.3.1 Concept Stage Overview

As shown above the concept stage of a project is the beginning of our project process and at this point your project will simply be an idea, it may be a good or a bad idea and it is important to realize that someone somewhere has identified a problem and possibly proposed a solution. The problem here is that the problem may be very vague and the proposed solution may not be the best if indeed a suitable solution in itself.

The primary objective of the concept stage is to correctly identify or define the problem (or need) and obtain agreement with your client that you correctly understand their issue. This is arguably the most critical point in your project. An incorrect understanding of your clients needs may result in an incorrect solution and a failed project. It is not uncommon for a solution to successfully address the wrong problem leaving your client with an unexpected and undesired outcome. If this happens, project failure can result by:

$$\text{Failure} = \text{Unmet Expectations (Gilbreath, 1986, p. 3)}$$

The Concept tollgate stage undertakes broad preliminary engineering work that addresses the defined problem with possible solutions, cost estimates, schedules, business benefits, preliminary safety analysis and reviews and is completed by obtaining client sign off.

Some projects at this stage will be cancelled where it can be seen that the benefits to the business cannot be justified due to construction risk, budget considerations or other engineering considerations that may cause the project to be cancelled.

This stage can be used to manage any work request received from any client and may be a budgeted capital item or a new unbudgeted item. If the item is an unbudgeted item, it may be possible to request funding from the client and engage a consultant to produce this conceptual work. It is in fact the preferred method as the cost is therefore not carried by Engineering Services, the client will pay for the external consultant.

The templates used in this stage are as noted in table 5.1

Table 5.2 – Concept Stage Templates.

Template No.	Template Title
CON001	Engineering work request
CON002	Project scope statement
CON003	Justification consultants Brief
CON004	Project Justification
CON005	Conceptual Cost estimate
CON006	Conceptual schedule
CON007	Feasibility Project Execution plan
CON008	Design for safety review
CON009	Conceptual Financial analysis (NPV)
CON010	Concept Peer Review

Refer to Appendix D for Concept templates printout.

**Tollgate 1
Concept**

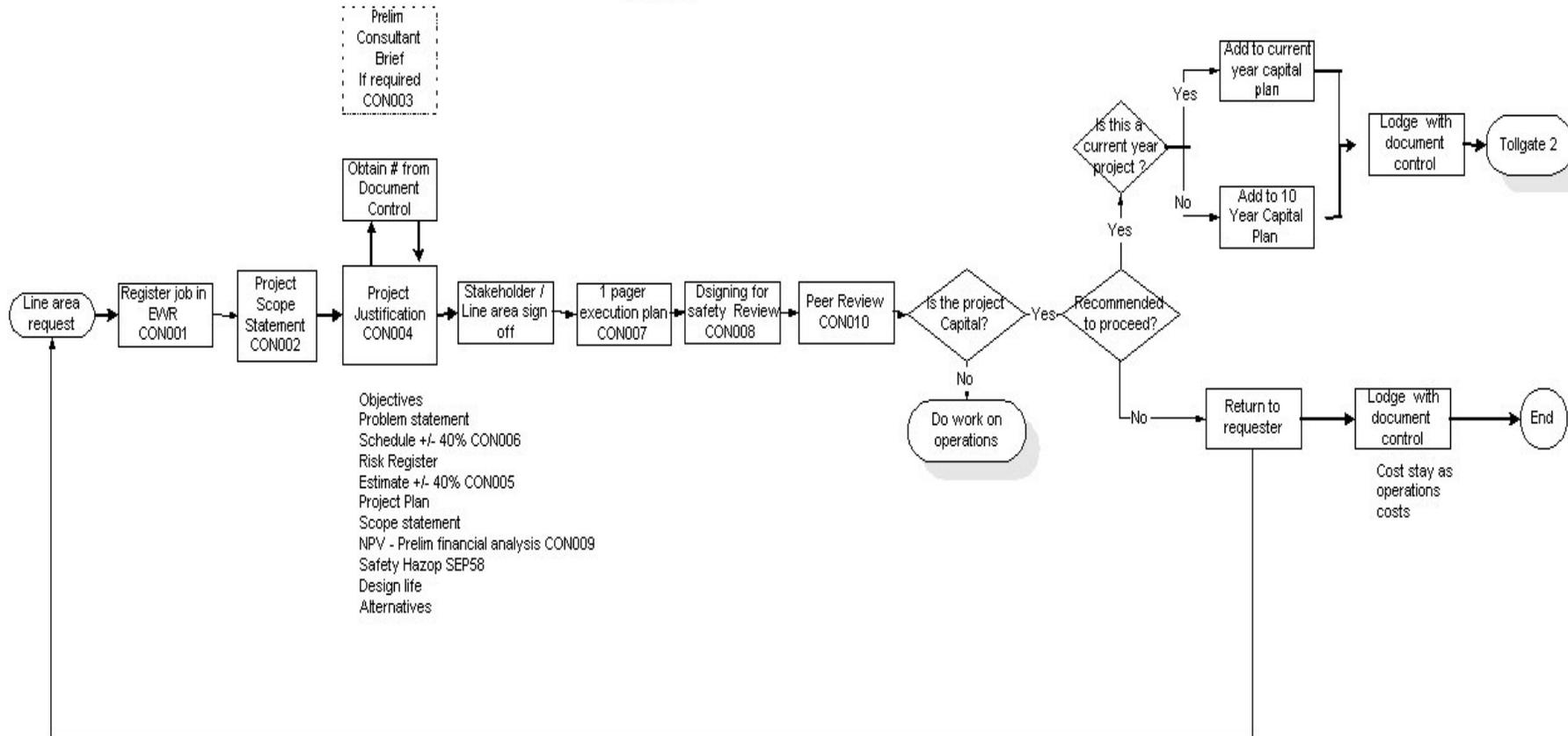


Fig 5.3 Process overview of the Concept (Tollgate 1)

5.3.2 Description of Templates and Requirements for Concept Stage

5.3.2.1 Engineering Work Request CON001

This is a simple form that the client is requested to complete in order that some preliminary information can be determined in order to progress the project eg. contact details, project name, client name and contact details etc. Refer appendix 2 for sample.

Costing – Where the client has requested non capital work or unbudgeted work then a cost codes should be provided by the client to fund the work completed by consultants and service providers. BHPBIO staff cannot back charge their hours unless it is a capital project.

5.3.2.2 Project scope Statement CON002

A Project Scope Statement as previously noted is important in setting the project off in the right direction. All projects require a clear and comprehensive statement that addresses what the deliverables of the project shall be. At this stage of the project the objectives and deliverables may not be easy to articulate and it is for this reason that this document is reviewed at the commencement of each stage to ensure client expectations are still being met. The Project scope statement addresses:

- Problem statement.
- An overview of the deliverables.
- Project objectives.
- Primary and Secondary stakeholders.
- Key assumptions.

And is signed of by all primary stakeholders.

Consultation with the client is vital and many iterations of this document will be required before agreement of the problem and deliverables is obtained with the client.

5.3.2.3 Consultants Brief CON003

If a consultant is to undertake the preliminary engineering work, then template CON003 is used to produce a Consultants brief. This document addresses the requirements for a consultant to prepare for Project Justification Report for BHPBIO. The document has a standard BHPBIO cover sheet and is allocated a document number from BHPBIO document control and is lodged for archiving with the document control office in Perth.

Document numbers are obtained using the document number request form PRO009 and forwarding the form to BHPBIO document control office. Information regarding document numbering protocol is available in Standard Engineering Practice SEP15 – Numbering and Titling of Engineering documents and Standard Engineering Procedure (SEP52).

5.3.2.4 Project Justification CON004

This document represents the initial engineering relating to the project and is only considered to be preliminary. It is possible for a consultant to undertake this work using the consultant's brief template to outline the work required and give the appropriate guidance to the consultant.

The justification statement gives an early indication of whether a project should proceed or be cancelled. It can be used to address line area requests for non-budgeted capital projects giving the client and capital committee budget and preliminary engineering for the project to be included into subsequent years funding.

The justification document is lodged with BHPBIO document control for future reference and includes the following key headings:

- Problem Statement
- Project Business Benefits
- Identify alternatives
- Key Project Stakeholders
- Key Project Team Members
- Project Cost estimates +/- 30% (Template CON007)
- Major Anticipated Risks
- Line Area Review
- Environmental, Land Tenure and Aboriginal Reviews
- Preliminary Project Schedule
- Preliminary Project Hazard Analysis/Risk Assessment
- Preliminary Sketches, drawings
- Financial Analysis
- Project Safety/risk Analysis
- Stage1 designing for Safety review (SEP58)

5.3.2.5 Prelim. Schedule (Template CON006)

Using template CON006 a preliminary project schedule is developed using Microsoft project and included in the Justification document as a gif type Gant chart indicating key milestones, start and finish

5.3.2.6 Preliminary Project Feasibility Plan (CON007)

This document is a brief outline of how the project will progress according to the project engineer from project concept to project completion and handover.

5.3.2.7 Financial Analysis NPV (CON009)

Template CON009 is utilized to perform the financial analysis required after all the financial items have been estimated. The output of the inputs entered into this spreadsheet model is a NET PRESENT VALUE (NPV) value. It should be noted that due to the approximate financial values input into the model at this stage of the project the NPV output values are also only approximate (+/- 30% accurate).

5.3.2.8 Peer review (CON010)

After the client and stakeholders have reviewed all the documentation and signed off on the Project justification document. A peer review shall be undertaken by engineering services dept. personnel using Template CON009. The review shall be done in conjunction with the relevant dept superintendent and the project engineer.

5.4 Definition and Planning Stage (Tollgate 1)

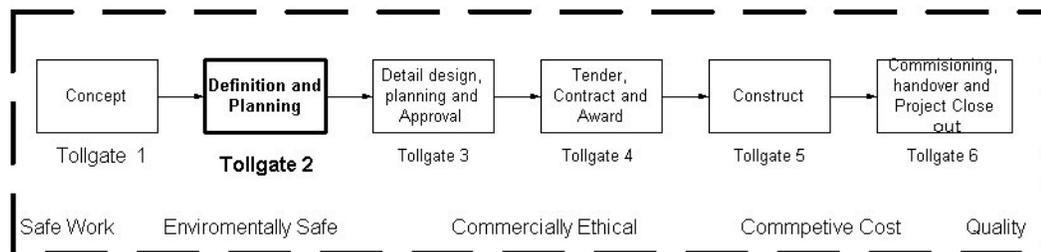


Fig 5.4 Definition and Planning (Tollgate 2) – Simplified Overview

5.4.1 Definition and Planning Stage Overview

The definition and Planning stage of a project focuses on the evaluation and selection of identified solutions. It is the responsibility of the nominated Project Engineer to lead this process in consultation with the project team and stakeholders taking into account elements such as constructability, client preference, construction cost, risks and financial analysis.

The scope statement developed in the Concept tollgate 1 stage is reviewed with the client to ensure that expectations have not changed. This is vitally important particularly if the client sponsor has changed as is common at remote sites. Any change to the previously agreed signed of scope should be documented and signed again by the project client. There may be the requirement to undertake preliminary justification work again in order to address scope changes.

After selection of the preferred alternative, more rigorous cost estimation is completed and a business case is developed based on the benefits to the business relevant to the project classification and the cost to implement the project.

Developing a preliminary project execution plan and schedule commences preliminary project planning. These documents are then presented as part of the capital funds allocation request to progress to the detail design stage.

A project Environmental, land tenure and Aboriginal review form is completed in order to ensure that the project follows suitable environmental guidelines and that land tenure and indigenous issues are addressed.

An independent project review is undertaken and given that there is no issues the project is presented to the capital committee for approval to proceed to the detail design stage.

5.4.1.1 Capital Review Committee (CRC)

In order to obtain approval to proceed to detail design the business case for the project must be presented to The Capital review committee. Contact the Capital Projects Officer to arrange an appointment to attend the fortnightly capital review meeting. The project is presented to the review committee with the purpose of receiving approval to proceed and the setting up of the appropriate accounting elements. The documents to be presented are:

- The Business Case
- Preliminary Project execution Plan
- Environmental and Aboriginal Review
- Capital Allocation Request
- PowerPoint Presentation

If the CRC approves the project, the Finance dept will setup and advise the project manager of the appropriate funding cost codes and funds can be drawn down to issue work orders for work to commence.

5.4.1.2 Operations cost to date:

Any costs expended to date including operations hours spent undertaking preliminary and conceptual work should now be costed to the project by advising the Finance capital accountant of the following information:

- I. Cost spent to date: This will include any consultant's costs and project engineers costs based at \$65/hr.
- II. GL Code.
- III. Responsibility and Cost centre codes.

5.4.1.3 Review Scope Statement

Before progressing to solution evaluation and identification, the scope statement CON001 signed off in the concept stage shall be reviewed with the client to ensure the problem statement, project objectives and expectations from the project are still relevant and valid. Minor or significant changes can be made to the document and it is critical that client changes or doubts about where the project is heading, are captured here, to

ignore client misgivings at this point is perilous and increases the risk of project failure by expensive rework and schedule/shutdown delays.

5.4.1.4 Option evaluation and Selection

The process of evaluating and selecting a suitable option can be undertaken many ways. In the concept stage of the project, a number of solutions were generated however generally with a budgeted capital project a solution has already been proposed. The project may be to simply detail the proposed solution into a tight scope for implementation on one extreme or to analytically develop a solution in the other extreme. In any case the process taken to finally choose your solution must be done in conjunction with your stakeholders and project client and signed off by them before progressing to detail design.

This process may require the production of conceptual sketches, Process and Instrumentation sketches (P&ID's) and process flow diagrams (PFD's) in order to graphically present the proposed solutions. Kick-off feasibility design review meetings should be held with stakeholders to gain consensus and sign off on a preferred solution. This is an iterative process going back and forth many times between the project engineer, the stakeholders and the designer before final agreement is obtained.

Noted below is a broad process that may be undertaken to select a final solution

- **Idea Ranking**

- Develop ranking criteria and weighting factors to evaluate alternatives using set criteria under the following criteria headings.
 - Must haves
 - Nice to haves
 - Budget considerations
 -

- **Analysis**

- Evaluate options using ranking criteria.
- Assess the risks.
- Identify top two or three preferred options.
- Document decisions relating to the preferred options (pros, cons, issues, etc).

- **Development**

- Gather additional data and information required to reduce uncertainty (eg, conduct site visits, generate more pilot data, reference to past similar solutions, etc.). Develop more detailed selection criteria.
- Do the final analysis of the preferred options within the boundaries of the ranking criteria. This analysis should include a risk analysis of each of the preferred options.

- **Recommendation**

- Prepare, document and present the team’s recommendation of the best option. If the stakeholders are part of this process then the project will have a greater chance of success and acceptance from the workgroup.

The templates used in this stage are as noted in table 5.3

Table 5.3 – Definition and Planning Stage templates.

Template No.	Template Title
DEF001	Cost Estimate and Tracking
DEF002	Project Business Case
DEF003	Project Execution Plan
DEF004	Detail Schedule
DEF005	Environmental, land tenure and Indigenous Approval
DEF006	Definition and Planning Peer Review
DEF007	Capital Request form
DEF008	PowerPoint Capital Request presentation
DEF009	Design for Safety Review

Refer to Appendix E for Definition and Planning templates printout.

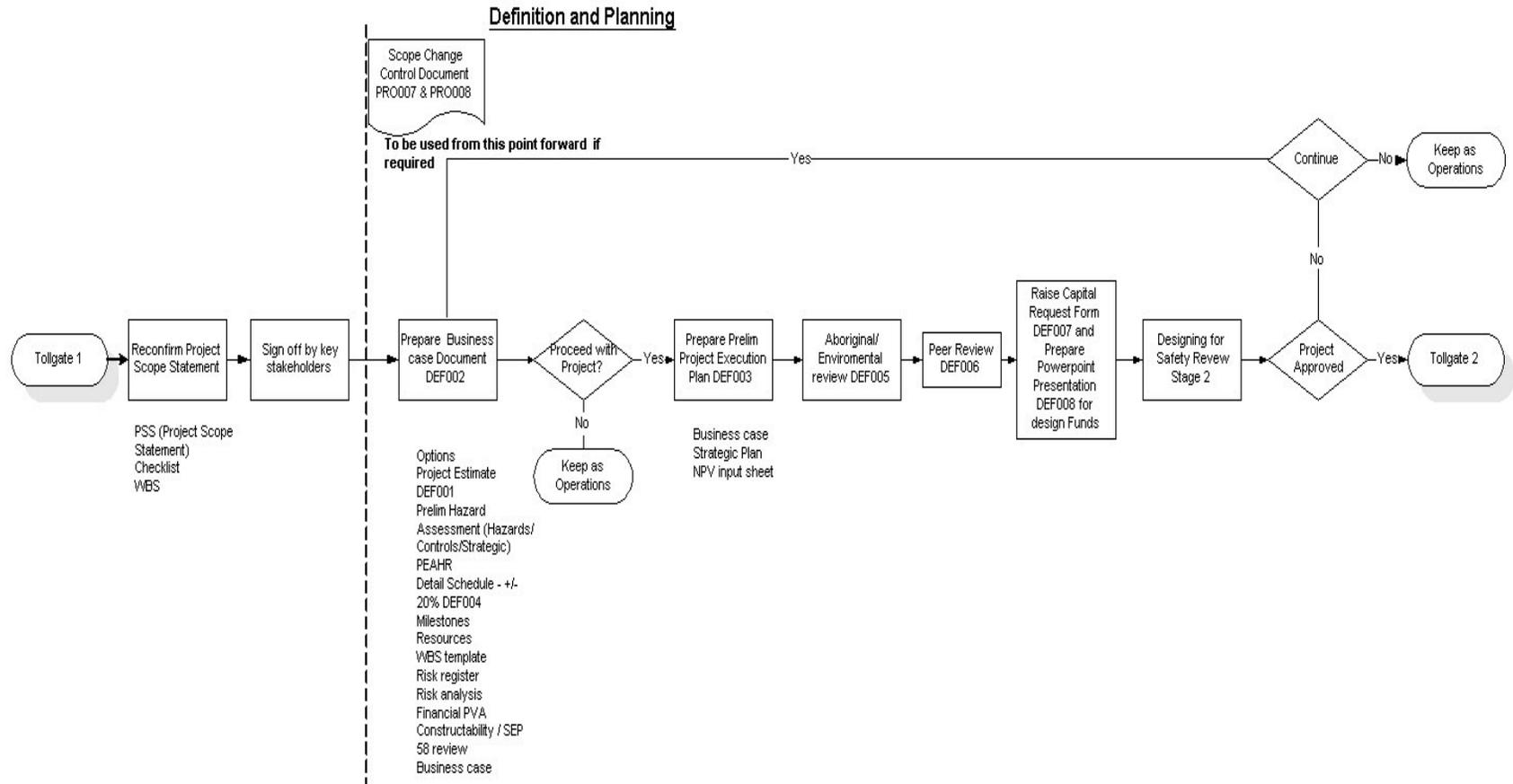


Fig 5.5 Process overview of the Definition and Planning stage

5.4.2 Description of Templates and Requirements for Definition and Planning Stage

5.4.2.1 Cost Estimate DEF001

The next stage of the project involves seeking design funds. The reasons for this are that at this stage of a project it will be difficult to accurately estimate project implementation costs with only conceptual design information. Hence +/-10% cost estimates for design and documentation of the project are prepared with +/-25% cost estimates for construction. Some approaches to the market may be made in order to obtain accurate costings.

This is then the basis for a Capital Allocation Request for project funding with the approved scope and funds limited to the design documentation of the project. Use of cost estimate template DEF001 is used to determine the cost estimate.

If a project estimate exceeds its allocated capital budget amount, the relevant client manager or superintendent must identify cuts in other areas in order that the project progress any further

5.4.2.2 Detailed Project schedule DEF004

In order to develop the business case more detailed project scheduling is undertaken utilizing the more detailed scheduling template DEF004

5.4.2.3 Project Business Case DEF002

With a selected solution and a +/-25% cost estimate for construction, the business case for presenting the project to the Capital Review Committee (CRC) must be produced. The business case document is the document that proves to the CRC that the project should be progressed. It does this by demonstrating the problem or opportunity to be addresses, the business benefits, the scope of work to be completed in a Work Breakdown structure (WBS), the project strategic fit, project classification, a brief analysis of the main options considered and a risk assessment. Importantly, for a project that is classified a financial benefit project, a financial analysis is completed that articulates the financial benefits. If it is a safety risk reduction type project, the safety benefits are articulated. The Project Business case includes the following key headings:

Project Objectives

Project Business benefits

Scope Of Work
 Regulatory Requirements
 Analysis Of Options
 Financial Summary
 Risk Summary
 Resources
 Risk Management

5.4.2.4 Project Execution plan (Preliminary) DEF003

The preliminary project execution plan (PEP) is a preliminary document that details the way in which the project will progress if approved. When and if the project is approved, the preliminary PEP is finalized and signed off by key project stakeholders. The Project Execution Plan includes the following key headings;

- Project objectives and Deliverables
- Work Completed to date
- Project Scope of Work/Exclusions
- Impacts on Infrastructure
- Major Anticipated Risks/ Risk Management Plan :
- Key Measures Of Project Success
- Project Team and Roles
- Organisation Chart/ Key positions, roles and authority
- Safety
- Implementation strategy
- Commercial strategy
- Project Schedule
- Project Budget
- Project Control
- Communications and Project Reporting Plan.
- Project Quality and Auditing
- Project Auditing
- Operations/Maintenance Handover
- Handover
- Training requirements

5.4.2.5 Project Environmental Land Tenure and Aboriginal Heritage review (PEAHR) DEF005

A PEAHR approval form should be completed to highlight at this early stage any environmental, land tenure and aboriginal issue that may impact upon the project. The form is circulated to the Environment department, Aboriginal affairs and Engineering infrastructure office for approval.

5.4.2.6 Peer review (DEF006)

After the client and stakeholders have reviewed all the documentation and signed off on the Business Case. A peer review shall be undertaken by Engineering Services dept. personnel using Template DEF006. The review shall be done in conjunction with the relevant dept superintendent and the project engineer and provides a robust audit prior to the project going to the Capital Review committee.

5.4.2.7 Requesting funds Approval Capital Allocation request DEF007 PowerPoint Presentation DEF008

The project is now ready to be presented to the capital review committee. Two documents are required to complete the documentation for this stage as part of the submission for funds.

1. The capital allocation request template DEF007 is a summary of the business case document and requires completion. If the submission is successful this document is signed by the committee and forwarded to the finance department for funds releasing.
2. A power point presentation DEF008 is prepared to present the business proposal to the capital review committee.

Once the submission is prepared the Capital Allocation Request, the Power point presentation and the business Case document are forwarded to the Capital projects Officer. A 15 min timeslot for presentation to the CRC will be allocated at the next capital review meeting. The documents must be sent at least 24 hours in advance of the next capital meeting, which are held fortnightly.

The project manager and the project client will be expected to present the project in order to convince the CRC that the project has adequate business needs. Any projects taken to the CRC should have passed through adequate reviews to this point and acceptance by the Capital Review committee should merely be a formality. The CRC may reject, accept or request further information. The preliminary project execution plan is the document that addresses any issues that may arise while presenting the project and should be accessible during the presentation to the CRC.

If the capital committee approves the project then Tollgate 2 has been passed and the project may proceed to the Detail Design and Planning stage tollgate 3.

Note that the committee may accept the proposal, but some signatures may still be required. It should be noted that the Capital projects officer should be responsible for obtaining the remaining signatures, it is advisable that the project manager ensure that the remaining signatures are indeed obtained and that the paperwork is not lost. Projects in excess of 1 million dollars in value are required to be presented to the president Iron Ore for signature. Once again the capital Projects officer is charged with arranging this signature.

Once all signatures are obtained a WBS element number is obtained via the Capital projects officer. This WBS number is to be used to post all project costings.

5.4.2.8 Creating the GSAPP Project Capital works Order.

Once the WBS cost code is created and released, the project manager will be notified by the capital projects Officer. A GSAPP capital works Order can now be created. All project requisitions for services and goods shall now be created from this work order.

Costs to Date

All cost to date in obtaining project approval should now be journalled and costed to the newly created WBS Cost code. Notification of these costs is made to the capital accountant who is responsible for allocating these costs to the nominated WBS cost code.

5.5 Detail design and Planning Stage (Tollgate 3).

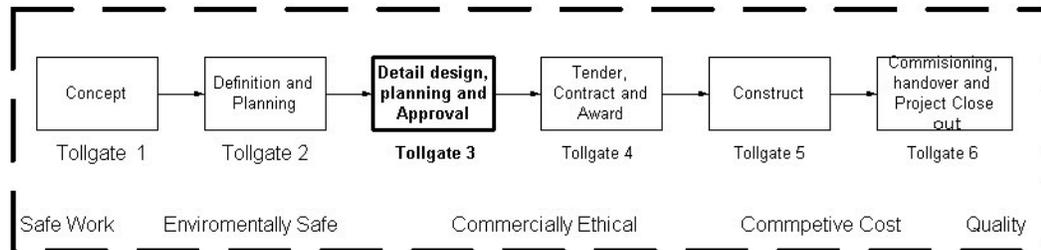


Fig 5.6 Detail Design and Planning (Tollgate 3) – Simplified Process

5.5.1 Detail Design and Planning Stage overview.

This stage of the project process sees the commencement of the design detail and detail planning. Project cost estimation is tightened up to +/- 5-10% which is the most accurate estimation that will be expected for the project.

The completion of detail design results in detail drawings and functional specifications that enables the project manager to obtain costing in the order of +/-5%. This level of costing is obtained by approaching the market for budget costings either by direct hire of a fabricator or by formal tendering. Direct hire of a fabricator is requesting a contracting company to provide a budget figure for construction using the design drawings. The contractor is remunerated for the time taken to produce an estimate. Formal tendering is formerly approaching the market via the BHPBilliton iron Ore supply department seeking competitive prices or submissions to complete the work. At the completion of the tendering process, firm cost estimates will be known and construction funds can be sought with a high degree of confidence that the sum being sought will be a fair estimate of the cost to complete the project.

Design work within Engineering services department will generally be completed by external consultants. In order to issue work to a consultant a formal design brief should be issued to the consultant that details the work required and the design criteria. An important part of the design process is for the project engineer to undertake formal design reviews and designing for safety reviews. These reviews are completed with the workgroups and the project team and are required under the Mines Inspection act.

The project execution plan is finalized and approved by the client as the most appropriate way to complete the project and confirms scheduling, resources, risk mitigation and supplies the project manager with the commitments required by the line area to complete the project with respect to shutdown planning and resources.

Tender documentation is prepared in preparation of the tendering process including a scope of work document and a pricing schedule.

An independent engineer completes a department peer review to ensure internal quality control.

Construction funds are now sought by presenting to the capital committee a submission for the final cost to construct. If approved authority to proceed to market or contract is obtained and the tendering processes is undertaken by the supply department.

Preliminary shutdown planning and long lead procurement is commenced.

Table 5.4 – Detail Design and Planning Stage templates.

Template No.	Template Title
PLA001	Design Consultants Brief
PLA002	Design Review
PLA003	Design for Safety Review
PLA004	Final Project execution Plan
PLA005	Detail Design Peer Review
PLA006	Budget Cost Scope of Work
PLA007	Capital Request form – Construction Funds
PLA008	PowerPoint Capital Request Presentation
PLA009	Authority to Proceed to Market/Contract
PLA010	Preliminary shutdown Planning
PLA011	Procurement Planning

Refer to Appendix F for detail design and planning templates printout.

Tollgate 3
Detail Design

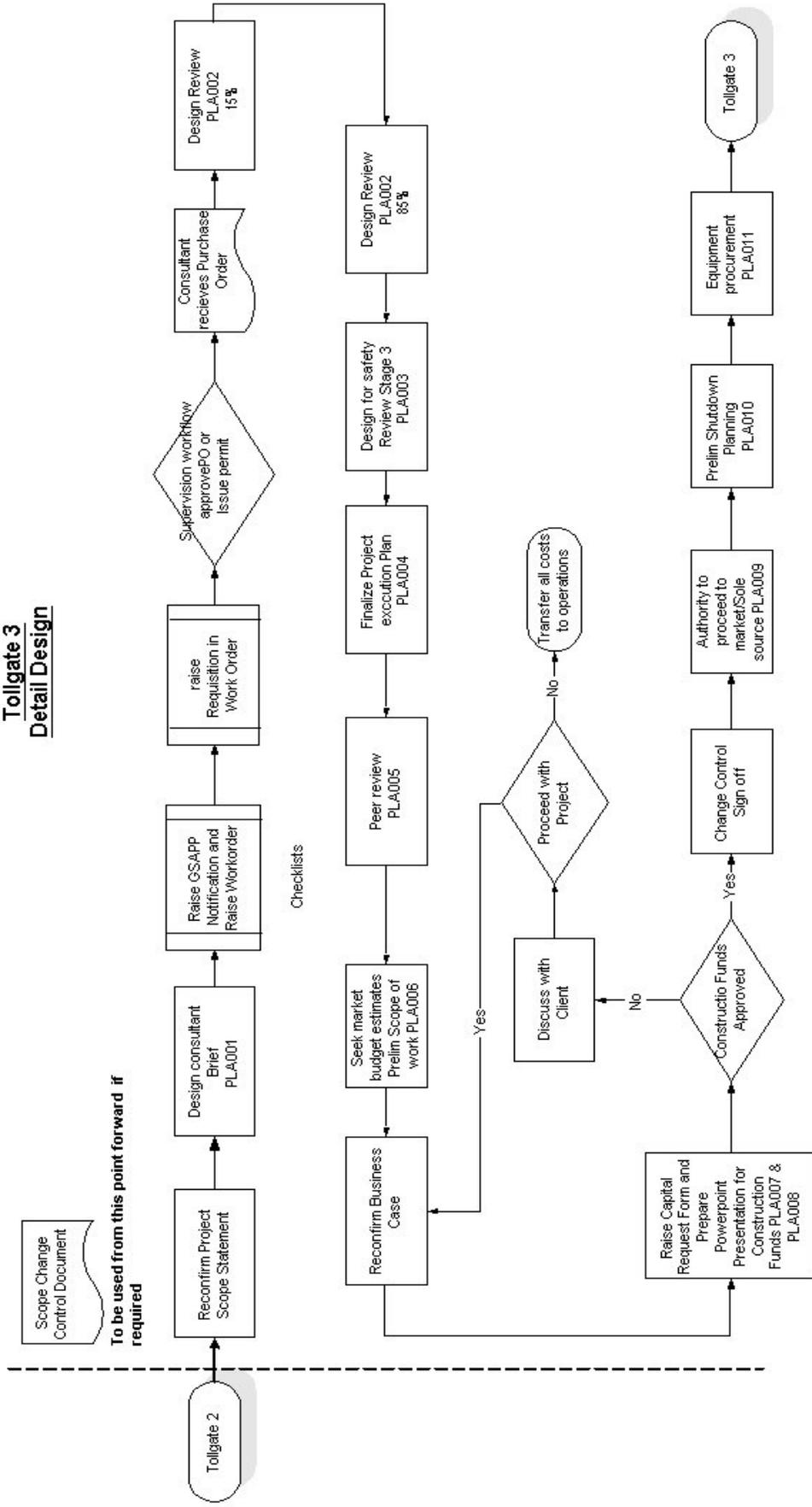


Fig 5.7 Process overview of the Detail Design and Planning stage

5.5.2 Description of Templates and Requirements for Detail design and Planning Stage

5.5.2.1 Review Scope Statement

As in the Tollgate 2 stage prior to progressing to the detail design stage, the scope statement CON001 signed off in the concept stage shall be reviewed with the client to ensure the problem statement, project objectives and expectations from the project are still relevant and valid. If significant changes are requested, then the project shall have to be returned to the capital review committee for re-approval.

5.5.2.2 Consultants Brief PLA001

If a consultant is to undertake the design engineering work, then template PLA001 is used to produce a Consultants brief. This document addresses the requirements for a consultant to undertake the design process. The document has a standard BHPBIO cover sheet and is allocated a document number from BHPBIO document control and is lodged for archiving with the document control office in Perth. Document numbers are obtained using the document number request form PRO009 and forwarding the form to BHPBIO document control office. Information regarding document numbering protocol is available in Standard Engineering Practice SEP15 – Numbering and Titling of Engineering documents and Standard Engineering Procedure (SEP52).

This consultants brief is issued to a minimum of three prospective tenderers and prices sought for the design work to be completed. The project manager will with advice from the relevant superintendent and the supply department award the design package to the most appropriate consultant depending on skill base, scheduling and cost. Fixed lump sum fee estimates are the preferred commercial strategy for BHPBilliton Iron ore.

5.5.2.3 Design review PLA002

The process of design requires a 15%, 85% and 100% review to be completed to ensure the design criteria is met and that the expected outcomes of the design process has been met.

The review process shall be as follows:

15% Review

The consultant shall provide a general arrangement that generally shows the layout of the design, preliminary functional specifications are presented, most probably in

dot point format and any other relevant information. The project manager arranges a design review meeting with the stakeholders and project team to ensure that the design intent is being achieved at this early stage of the project. Any discrepancies can be reported and the consultant brought back on track without any significant wastage of resource for the consultant. This review can prevent design cost overruns and conflict between the designer and BHPBIO.

85% Review

This review provides a check for the project team and stakeholders prior to final preparation and issuing of construction drawings.

100% Review

The 100% review is the process of obtaining final construction signatures on the construction drawings.

The design review template PLA002 can be used at any or all of the design reviews but should be completed at least once. The checklist presented in PLA002 should be addressed and documented as the minutes of the review and passed around to all reviewers.

5.5.2.4 Stage 3 designing for Safety review (SEP58)

A stage 3 designing for safety review should be completed at the conclusion of the detail engineering stage. SEP 58 refers in detail the process of undertaking a stage 3 designing for review. The output is in the form of a brief report in accordance with SEP58.

5.5.2.5 Finalized Project Execution Plan PLA004

The preliminary Project Execution Plan produced in the Tollgate 2 stage is now finalized and signed off by the client. The PEP details how the project is progressed and addresses all the key issues dealing with the project and should be referred to throughout the project.

5.5.2.6 Peer review PLA005

After the client and stakeholders have reviewed all the documentation and signed off on the Business Case. Engineering Services dept. personnel using Template PLA005 shall undertake a peer review. The review shall be done in conjunction with the relevant dept superintendent and the project engineer and provides a robust audit prior to the project going to the Capital Review committee.

5.5.2.7 Budget Costing scope of Work PLA006

In order to obtain +/-5% costing the next step is to seek budget or market costings. This is done two ways.

1. The template PLA006 preliminary scope of work is completed and the drawings and preliminary scope of work is presented to a fabricator with a request for the fabricator to develop an estimate to complete the work. Usually a 4-8 hour purchase order is provided to the fabricator to cover the cost of his time required to produce the estimate. This should take up to 4-5 days to complete. The project manager can use the budget estimate provided in order to apply for the funds in order to construct the project. Allowing time for project management and the supervision costs.
2. The alternative method to obtain 5% cost estimates is to formally approach the market with a full or short form tender. The process to progress this method is described in full detail in the Tollgate 4 section of this manual.

5.5.2.8 Authority to Proceed to market (ATPTM) (Short Form/Long Form)

Irrespective of the approach taken above an authority to proceed to market must be completed at some stage of the project if the dollar value of an individual work package is greater than \$50,000. This document is a required document by the BHPBilliton iron Ore supply department and must be completed and fully signed off prior to a formal or short form contract being issued to the market. It is not required when obtaining budget estimates from a fabricator as detailed for method 1 above.

The reason the ATPTM is completed at this point of a project is that signatures can be obtained when the project is presented for construction funds, this can save days or weeks in a project schedule particularly for long form ATPTM's.

A guide for the tender process is shown in tollgate 4, template TEN001.

5.5.2.9 Request for Construction Funds

With budget costing now firmed up at +/-5% Construction funds can now be sought similarly to the process to obtain design funds. The same documents are presented to the capital committee except that expected total cost of the project is +/-5%. The documents to be presented are:

Capital Allocation request PLA007

PowerPoint Presentation PLA008

Business case

Project Execution Plan

Authority to Proceed to market/contract

Environmental and aboriginal review

Once again the project manager and the project client will be expected to present the project in order to convince the CRC that the project has adequate business needs.

If the capital committee approves the project then Tollgate 3 has been passed and the project may proceed to the Tender-contract award stage tollgate 4.

5.5.2.10 Change Control

If the project receives approval a Change Control form must be completed and signed off by the relevant manager and superintendent. The Change control procedure document is SPR-OHH-SAF-052 on the Safety web page.

5.5.2.11 Shutdown Planning PLA010

As part of the detail planning, prospective shutdown request can now be requested via the shutdown request Template. This request should be sent to the relevant maintenance planner for the relevant area and followed up until the shutdown is completed. Note many projects do not require a shutdown.

5.5.2.12 Procurement strategy PLA011

This is a procurement-planning document that assists in organising the procurement of services and goods. It attempts to identify those procurement items that have a long lead time in order that they can be procured to plan. Note that all capital procurement items must be procured by the nominated supply services representative. This is done by completing a purchase requisition (goods order) in the work order created previously for the project

5.6 Tender, Contract and Award Stage (Tollgate 4)

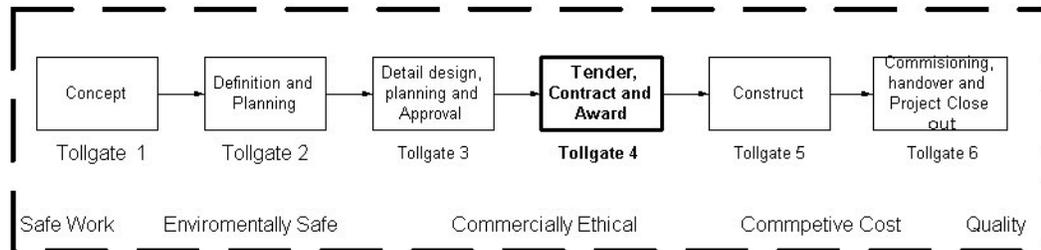


Fig 5.8 Tender contract and Award (Tollgate 4) – Simplified process

5.6.1 Tender Contract and Award Stage overview

This stage involves commencing the formal tender and contract strategy, which formally approaches the market seeking submissions from prospective tenderers to construct/fabricate, the project for adequate consideration.

It involves confirming the type of contract strategy, selecting the contractor, outlining the conditions of the contract and the type of relationship between BHPBIO and the contractor.

A key consideration with all commercial arrangements is that a contract with satisfied parties will generally be a successful contract. The contractor returning a profit and BHPBIO being satisfied with the delivered product generally achieves this.

The project engineer/team are advised that they are responsible for driving the commercial process and while advice is taken from the supply department, the final decision for contract strategy rests with the project manager.

Table 5.5 – Tender, Contract and Award Stage templates.

Template No.	Template Title
TEN001	Supply Dept guide
TEN002	Scope of Work
TEN003	Annexure A – Schedule of Prices
TEN004	Site Meeting Agenda and Minutes
TEN005	Safety and Environmental Plans
TEN006	Preliminary Tender Evaluation
TEN007	Bid Clarification Minutes
TEN008	Formal Tender Analysis
TEN009	Authority to Proceed to Contract
TEN010	Designing for Safety Review
TEN011	Supply Dept Policies

Refer to Appendix G for Tender, Contract and Award templates printout.

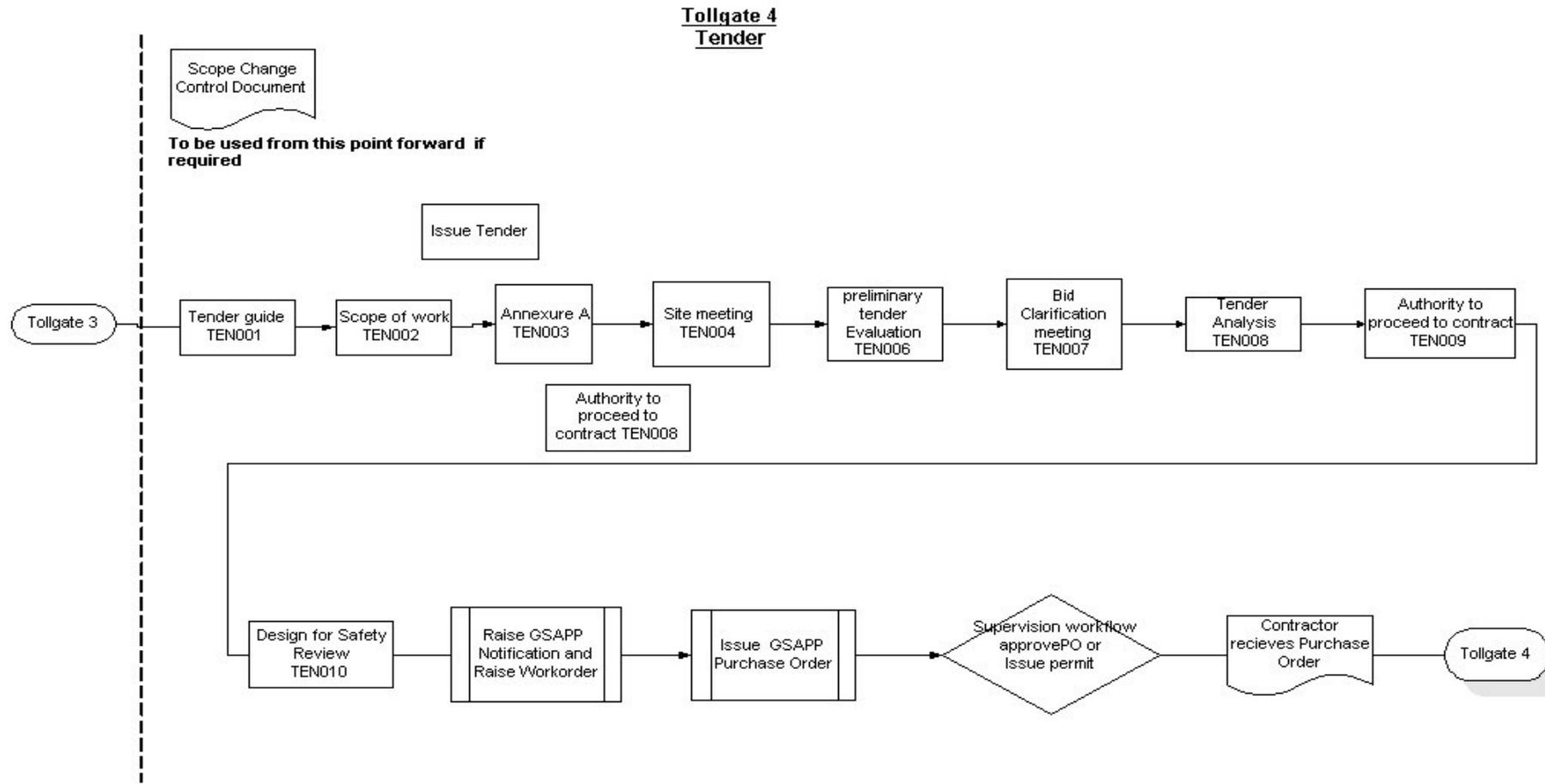


Fig 5.9 Process overview of the Tender, Contract and Award stage

5.6.2 Description of Templates and Requirements for Tender, Contract and Award Stage

5.6.2.1 Contracting strategy:

This is generally addressed in the Authority to Proceed to Market (ATPTM). Selecting the appropriate contracting strategy is vital to ensure a successful, efficient and effective project. A correctly chosen strategy can result in competitive pricing, efficient work practices. Key components of a contracting strategy are:

Form of Contract: Design and construct, Construct only, turnkey handover, fixed Lump sum, schedule of rates, cost plus

Risk management: Who holds the risk noting that if the contractor takes the risk, the company will pay more. An example of contractor risk is Fixed lump sum contracts. An example of company risk is Cost plus contracts. A contractor will not accept risk without being rewarded.

Liquidated damages: essentially a fine for the contractor if scheduled deadlines are not met.

Equipment procurement Where BHPBIO can procure equipment items at low cost, BHPBIO should procure rather than the contractor.

Contractor Pre-qualification: The use of contractors that have been pre-qualified by contracts via existing miscellaneous works contracts. Prospective tenderers should be able to demonstrate appropriate skill and experience.

Below is a glossary of the terms involved within the tender process.

Sole sourcing – Where a contract is let without tendering to the open market. This is done for a number of reasons. For example:

- I. There is only one supplier available.
- II. A particular piece of equipment is required by a vendor eg pump
- III. The project is awarded breakdown status.
- IV. The contractor has a particular skill set or knowledge that is unique to them.

Approval is required to Sole source in order to ensure no impropriety is occurring and to ensure the company is still receiving value for money.

When Sole Sourcing the appropriate authority to Proceed to Contract is prepared and signed of as per TEN001. Signoff for Sole source is provided to the supply department prior to a requisition is raised

Scope of work (SOW) Template TEN002– A scope of work is a contract document that contains the technical requirements of the contract. Engineering personnel exclusively write the scope of work document.

Contract Documents – The remainder of the tender documentation issued to prospective tenderers. Supply personnel exclusively write the tender documents made up of:

- Contract Agreement.
- Special conditions
- General conditions

Authority to proceed to market (ATPTM) Short/long form and Authority to Proceed to contract (ATPTC) Short /long form - A document that outlines the commercial process and is required to completed and signed off prior to tender documentation being issued and contracts issued.

0 - \$50,000	Not required
\$50,000 - \$150,000	Short form
\$150,000 and greater	Long form

BHPBilliton Iron Ore prefer Fixed lump sum type contracts, however these require water tight scopes of work and contract documents. Discussion with your relevant superintendent and supply personnel should assist you in choosing the correct approach, however, project engineering staff must realize that the Supply Department may add items that add cost and risk to the contractor. It may be more appropriate at times for BHPBIO to accept the risk. At all times the Project engineer assumes responsibility for the project and if a preferred strategy is required, then this should be the strategy undertaken.

5.6.2.2 Document guide TEN001 and Supply Department policies and Framework

A general guide to the appropriate level of contracting and documents required is outlined in Table 5.7 TEN001. This gives an indication of the dollar level requirements

for Authority to proceed to Market or Contracts, Sole sourcing levels, scopes of works etc. Refer to this guide to determine what level of documentation is required by nthe Supply department in order to approach the market.

The Supply Department governance requirements for BHPBilliton Iron ore are outlined in the TEN010 document “Supply department Policy document – Quotations and Tenders” and serves as a detailed written guide to the tender process

Table 5.7 TEN001 Guide to contract documentation requirements

PORTS & RAIL
QUOTES, TENDERS AND SOLE SOURCING

\$ Value	SOW	ATPTM	Tender Requirements	Tender Document and Responsibilities	ATPTC	Sign Offs	
0-5k	Optional	Not Required	1 Quote	Department responsible Verbal	Not Required	SOW HSE & Department Manager	
5-50k	Optional	Not Required	3 Written Quotes or Sole Source Sole Source addressed in and approved as part of ATPTC	Department responsible Cover Letter SOW Pricing Schedule (Annexure A) Reference to relevant terms and conditions	Short Form ATPTC for sole source only	SOW HSE & Department Manager ATPTC Company Representative Department Manager Senior Supply Services Officer – Sole Source only	
50-150K	Required	Short Form ATPTM	Short Form Tender or Sole Source Sole Source addressed in and approval as part of ATPTM	Supply to manage tender process Cover Letter SOW (Department to raise) Pricing Schedule (Department to raise) Reference to relevant terms and conditions	Short Form ATPTC	SOW HSE & Department Manager ATPTM Company Representative Department Manager Senior Supply Services Officer (PS)	ATPTC Company Representative Department Manager Senior Supply Services Officer (PS) Vice President
150-250k	Required	Long Form ATPTM	Formal Tender or Sole Source Sole Source addressed in and approval as part of ATPTM	Supply to manage tender process Department to raise SOW Pricing Schedule	Long Form ATPTC	SOW HSE & Department Manager ATPTM Company Representative Department Manager Supply Services Manager (LM)	ATPTC Company Representative Department Manager Supply Services Manager (LM) Vice President
250k+	Required	Long Form ATPTM	Formal Tender or Sole Source Sole Source addressed in and approval as part of ATPTM	Supply to manage tender process Department to raise SOW Pricing Schedule	Long Form ATPTC	SOW HSE & Department Manager ATPTM Company Representative Department Manager Manager Supply (TA) Vice President	ATPTC Company Representative Department Manager Manager Supply (TA) Manager Finance Vice President

Should you have any queries, please contact the **Supply Services Team** prior to commencing any work.

5.6.2.3 Contract Documents Prepared by Project Engineer

Scope of Work TEN002

Pricing schedule TEN003

Authority to Proceed to Market PLA009 (Already Prepared in Tollgate 4)

The scope of work document is required to be prepared and signed of by the Engineering Services Manager and the Safety Manager. A peer should also review the document.

The pricing schedule is used to determine how the project engineer wishes to have tenderers price the project. This can be vital in comparing different proposals. A pricing structure is not to be used to chop and select the best prices for separate components of the project and award to different contractors; this is unethical and most probably would be rejected by the contractor.

The authority to proceed to market should have previously been completed and signed off.

These three documents are handed to the Supply department for issuing of the tender. The project Engineer will receive a copy of the contract documents at tender issue.

5.6.2.4 Tender Site Meeting Agenda and Minutes TEN004

All tenders in excess of \$20,000 should include a site meeting with all prospective tenderers. The purpose of the meeting is to ensure that the tenderers have a clear understanding of the environment that the contract will take place in. It is also used by the Project Engineer to clearly articulate what the engineers requirements will be with respect to safety, quality control, Environmental requirements, shutdown requirements and any other points or issues that should be brought out into the open. This meeting is useful in avoiding nasty surprises for the contractor and BHPBIO.

Minutes of the meeting should be taken and issued to all attendees and the supply department. Site meetings are mandatory and not-attendance results in a non-conforming tender which under normal circumstances excludes the tenderer from winning the contract.

5.6.2.5 Safety and Environmental Management Plan. TEN005

Whilst the tender process is progressing, it is a good opportunity to prepare the project safety and environmental safety management plan. The project engineer accepts all

responsibility for the safe undertaking of all work under the project. BHPBIO does not contract out its responsibility with respect to safe working.

Note:

The BHPBIO Project Engineer is always ultimately responsible for project Safety.

There are numerous site safety rules and procedures. The Safety and Environmental management plan (SMP) seeks to document the issues most relevant to the project at hand. Template TEN005 provides the project engineer with a guide to preparing a SMP and it addresses the following items:

Safety management Plan

- Project Goal
- Key Stakeholders
- Project Communication
- Reference Documents
- Contractor Safety Management Manual Man-Ohh-Saf-003
- Project KPI's
- Site Safety File
- Project Risk Assessment/JSA's
- Project Inductions
- Training
- Personal Protective Equipment
- Plant And Equipment
- Traffic Management/Parking
- Permits/Isolations
- Emergency Response Procedures
- Cyclone Procedures
- Evacuation Procedures
- Accident/Incident
- Material Safety Data Sheets
- Toolbox Meeting Procedure
- Housekeeping
- Safe Work Procedures

- Site Safety Audit
- Checklist Items

Environmental Management Plan

- Project Goal
- Litter
- Noxious Wastes And Oils
- Work Areas
- Servicing Of Vehicles
- Diesel Spill Management
- Dust Minimisation
- Detailed Work Procedures

5.6.2.6 Tender Assessment

The assessment of tenders is both a technical and commercial consideration. Generally the lowest price bidden for fixed lump sum work will be accepted however some other considerations are included for example indigenous employment levels, schedule, safety history and skill set. Dependent on the level of project complexity or the closeness of bids a detailed tender analysis may be required.

5.6.2.7 Preliminary Tender Evaluation TEN006

This is a very preliminary document and is only required if the contract is a large complex contract. It serves to provide some initial conformance-non-conformance details.

5.6.2.8 Clarification Agenda and Minutes TEN007

Once a likely tenderer(s) is short listed, an in-depth and detailed “Tender Clarification” meeting is held. The purpose of this meeting is to clarify any particular areas of uncertainty between the project engineer and the tenderers submission. It is also an ideal opportunity to meet with the tenderer face to face and outline the company’s expectations in regards to the Safety, Induction and quality requirements and any other issues that may be important with respect to the contract. The tenderer may be asked to describe his methodology to undertake his work and demonstrate his skill area. The Tenderer may also wish to revise his price as a result of the clarification meeting and

should be asked at the conclusion of the meeting if the pricing and conditions submitted are still on offer.

A copy of the Contractors safety management manual should be provided to the contractor if there are unfamiliar with working on BHPBIO sites.

The minutes of the tender clarification meeting shall be prepared and issued to the tenderer, the supply department representative and the project file.

5.6.2.9 Formal Tender Analysis TEN008

Once Bid clarification meetings have been held and all tenderers have confirmed their bid, a Formal Tender Analysis is undertaken. The analysis is undertaken with Template TEN008 and involves a financial Analysis and a KT analysis.

Financial Analysis:- this involves purely listing the financial aspects of the project and comparing the final financial outcome.

KT Analysis: This analysis seeks to include non-financial aspects of the proposal in order that local content, indigenous, quality and safety history, methodology and scheduling are taken into account. The project Engineer can include any item heading that is deemed to be relevant for inclusion and adjust the weighting as he sees fit. However it must be justifiable and peer reviewed

It is generally accepted that the KT analysis is accepted as the basis for awarding the contract

5.6.2.10 Authority to Proceed to market TEN009A or B

As a result of the tender analysis completed, a decision has been made with regards to which bid to accept to award the tender construction phase to. An authority to proceed to Contract form must be prepared by the contract engineer for management sign off. This document is a supply Department document and serves no purpose to the project engineer other than it is required to be completed and signed of before the supply department. Will formally issue a tender.

5.6.2.11 Stage 4 designing for Safety review (SEP58) TEN010

A stage 4 designing for safety review should be completed at the conclusion of the tendering stage. SEP 58 refers in detail the process of undertaking a stage 4 designing for review. The output is in the form of a brief report in accordance with SEP58.

Once the contract has been awarded via the supply department, the project manager will be notified by the supply department and a purchase requisition can now be raised from the GSAPP workorder created in the detail design and planning stage (Tollgate 3).

5.6.2.12 Stage Summary

The Tender, Contract and award stage of a project is the stage of a project where the work to be done, be it construction type work, software development, training or any deliverable that is to be delivered as part of your contract is awarded to some external party who for an agreed consideration (money) will deliver the product to BHPBIO. The process takes time and 6-8 weeks should be allowed for non-urgent works to be tendered and awarded. Generally the tenderers should be given three weeks to price their offer.

This chapter illustrates how the Project Engineer prepares documentation for the supply department which is primarily a scope of work document that details the technical requirements of a contract.

It asks the engineer to hold site meetings and bid clarification meetings so that misunderstandings are resolved and the tenderer is comfortable with his offer. Minutes of these meetings are prepared and distributed.

Finally a formal tender analysis is completed and an authority to proceed to market is signed off.

It is important that both parties understand the other party. For BHPBIO, A quality product is expected, for the successful tenderer, adequate remuneration is expected for work done. If the contractor is unclear regarding the volume or quality of work to be completed at this stage, then it is likely the construction phase will fail or be subject to problems. It is vital at this stage that each party thoroughly understands each others expectations.

5.7 Construction Stage (Tollgate 5)

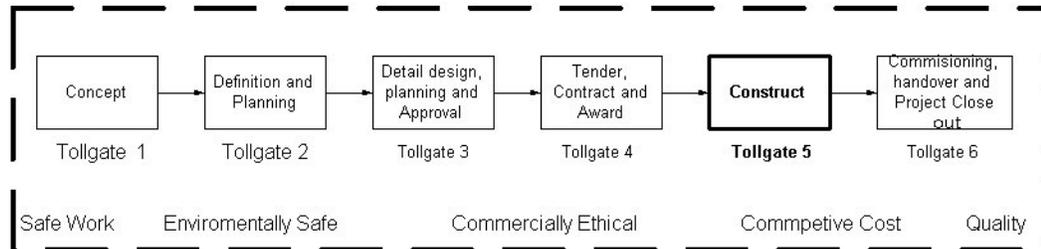


Fig 5.10 Construction (Tollgate 5) – Simplified process

5.6.1 Construction Stage overview

The construction phase of the project is the stage where the deliverables are created. It involves planning controlling and monitoring the resources obtained to deliver. This will predominantly involve working with the selected contractor with regards to labour, plant, materials schedule, shutdown planning and safety planning.

The project should have a kick-off meeting with the contractor and be monitored closely with adequate supervision throughout.

The main issues that the project engineer should monitor and control during this phase of a project are:

- Safety
- Schedule
- Quality
- Budget
- Cash flow
- Risk

In order that the Project Engineer have adequate budget and scheduling control of the project Budget and scheduling tools will be employed. Construction risks are mitigated in accordance with the Project execution Plan and the contractor safety, schedule, quality and environmental plans are received, reviewed and finalized prior to mobilization.

Shutdown planning is finalized in conjunction with the Contractor and the company and mobilization dates are finalized and construction starts.

The project engineer must ensure that while works are progressing that he does not instruct the contractor in issues that are not his responsibility. The Contractor is responsible for safe construction methods, scheduling labour, resources and equipment arrival and also to ensure conformity with site safety rules. The Project Engineers responsibility is to ensure that the work conforms to specifications, good practice and site safety rules and approving and ensuring payment. Good construction diary/file notes are also required.

Preliminary handover discussions should start early in the construction phase in order to engage maintenance acceptance of the equipment.

Table 5.7 – Construction Stage templates.

Template No.	Template Title
CONS001	Construction Pre-Start Agenda/Minutes
CONS002	Construction Schedule
CONS003	Shutdown Request
CONS004	Note to Site
CONS005	Shutdown Plans
CONS006	50% Safety Quality and Environmental Review
CONS007	Pre-operation Review Request
CONS008	Construction Progress Meeting
CONS009	Site Safety Procedures
CONS010	Contractor Safety Management Manual
CONS011	Crane Use Request Form

Refer to Appendix G for construction templates printout.

**Tollgate 5
Construction**

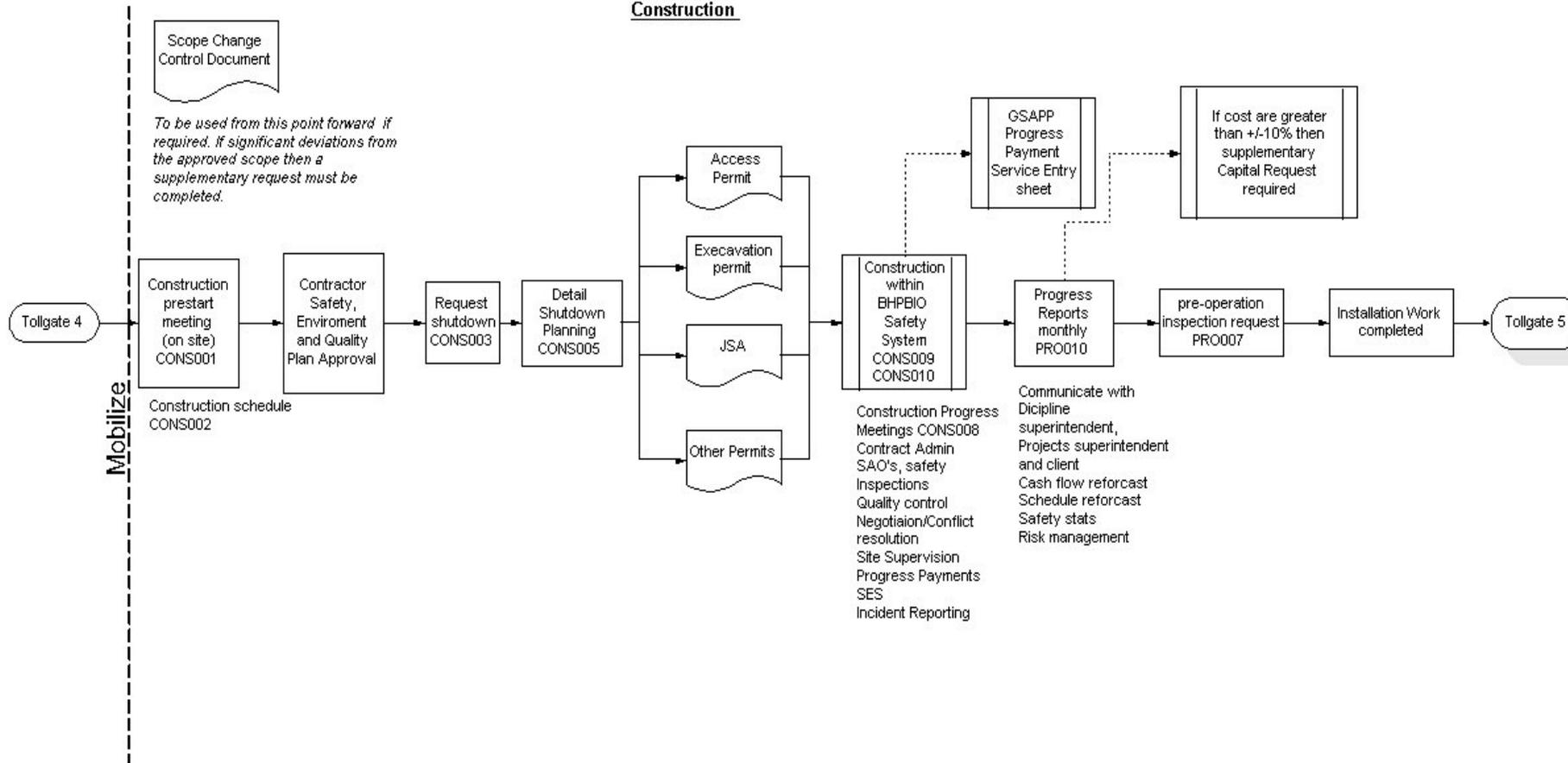


Fig 5.11 Process overview of the Construction stage

5.6.3 Description of Templates and Requirements for Construction Stage

5.6.3.1 Mobilization

Prior to mobilization the contractor should submit to BHPBIO for approval:

- Safety Management Plan (SMP)
- Environmental Management Plan (EMP) and
- Quality Management Plans (QMP)

The level of detail required in these documents is commensurate with the construction risk, complexity and technical requirements of the project. High complexity projects will require highly detailed documents. For example the safety management plan may be simply JSA's and compliancy with the BHPBIO safety requirements. Miscellaneous works contract holders will have a SMP and a EMP in place already.

These documents will work in conjunction with the documents developed by the project engineer earlier in the project. Other contractors may have to develop these as required.

The documents shall be reviewed and returned to the contractor for revisions and acceptance prior to contractor mobilization.

Planning for contractor inductions should be arranged (if required) prior to the contractor arriving onsite

5.6.3.2 Construction Prestart meeting CONS001

Upon arrival on site, the project team shall hold a pre-start meeting with the contractors site supervisor, the reason for this is that the site supervisor may not have been privy to all of the pre-mobilization discussions regarding safety and environmental requirements. It is beneficial if all expectations are discussed with all construction personnel involved. This meeting is minuted and copies of the minutes are sent to all parties for acknowledgement.

5.6.3.3 Construction schedule CONS002

The project will have an existing schedule developed in previous stages. With construction taking place the contractor should submit as part of the contract document a detailed schedule. This schedule, if acceptable, is input into the existing schedule that

shall adjust the project end date. An accurate project completion date can now be communicated to the client.

This document will be the major project schedule control and should be monitored closely during construction. If the contractor starts to fall behind schedule, then the project Engineer must use the submitted schedule as leverage in order to discuss how the project will be put back onto schedule.

5.6.3.4 Shutdown Request CONS003

The contractor or the project Engineer submits this shutdown request form to the line area scheduler in order to secure shutdowns. Note that some departments have additional requirements and the project Engineer is responsible for determining what those requirements are. The shutdown request should be sent to the relevant Engineering Services Superintendent also.

5.6.3.5 Note to site CONS004

At times a note to site is required to be issued to inform site personnel of construction activity, restricted areas and traffic management requirements. Template CONS004 shall be used as a proforma.

Notes to site are sent via email to CSC with manager approval and are attached to noticeboards via the mail clerk. Copies should also be sent to contracts department for distribution to contract companies. The relevant electrical supervisor for the area shall also be notified if any electrical work is to take place.

5.6.3.6 Shutdown Plan CONS005

To be developed if large major shutdowns are required. Submit to relevant engineering services Superintendent and Line area Superintendent for approval and comment prior to shutdown.

5.6.3.7 50% Safety, Environmental and Quality review CONS006

A review of safety, environmental and quality should be undertaken at 50% construction. This is a review of how the project is progressing with respect to safety, environment and quality and asks two simple questions.

- 1 Are we doing what we said we would do? If not then corrective action must be taken
2. can improvements be made? If so then improvements shall be made within economic justification.

5.6.3.8 Pre-operation review Request CONS007

As construction gets closer to completion it is valuable to commence to engage operations and maintenance staff at this point. Template CONS007 is a request form that is sent to relevant personnel asking them to attend a pre-operation review.

5.6.3.9 Construction progress Meeting – Minutes/Agenda CONS008

Depending on the length of project regular progress meetings should be held in order to monitor and control the project safety, quality, environment, budget and scheduling requirements.

In particular planned progress is compared to actual progress.

The following items should also be discussed and any items brought forward for discussion should be resolved and minuted:

- Safety inspections/SAO's.
- Any issues.
- Organisational changes (Beware of labourers suddenly becoming site supervisors when on time and materials work).
- Competency of contractor foreman/supervisor.
- Progress
- Commercial Issues, variations etc

5.6.3.10 Site Safety Rules CONS009

Contractor Safety Management Manual CONS010

These documents are a link to the BHPBIO site safety intranet and should be referred to and adhered to.

5.6.3.11 Crane use request Form CONS010

Used when a crane is required for use where BHPBIO are supplying crange.

5.6.3.12 Progress Payments to Contractor

Progress payments to the contractor are encouraged as it assists in evening out the companies cash flow. The contractor should obtain agreement with the project engineer prior to submitting a claim for payment. If agreement is made, the contractor may submit an invoice for payment. To ensure good relations with the contractor, the project

engineer is advised to approve and arrange payment immediately via the department GSAPP clerk

5.6.3.13 Construction safety control

In order to maintain and control project safety, the Project engineer must undertake regular safety auditing and Safe Act Observation's (SAO's)

SAO's and workplace inspection require carrying out regularly dependent on the complexity of the risk of the project. SAO's are to be completed on the standard company form. SAO's are a means of measuring safe and unsafe work behaviour. It is essential that work standards are reviewed for safety continuous improvement and compliance with work standards and procedures.

50% project safety review

5.6.3.14 Instructions to contractor

All formal instructions to contractors must be written on a Project Instruction Notice (PIN) and signed by the contractors and BHPBIO representatives. If the contractor wishes to claim additional cost due to the instruction then the contractor will submit a completed request for contract variation form (which is included in the contract documentation).

5.6.3.15 Stage Summary

This chapter has detailed the project process requirements during the construction stage of a project. Compliance with the steps shown here will provide good safety, environmental and quality control of your project and it is important to obtain some peer review at the 50% review stage. The requirement for meetings both pre-start and progress should be followed with minutes and while the Project Engineer is not responsible for resource management, methodology and planning, acceptable standards must be adhered to and approved. However the project Engineer must not direct the contractor else the possibility of "Principle responsibility" may come into play where the contractor is no longer deemed responsible for the work to being completed as the Principle has taken over.

5.8 Commissioning, Handover and Project close Out Stage (Tollgate 6)

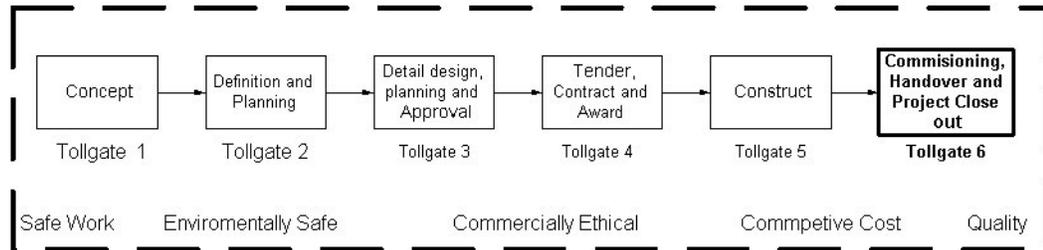


Fig 5.12 Commissioning, Handover and Project Close Out (Tollgate 6) – Simplified process

5.8.1 Commissioning, Handover and Project Close Out Overview

Prior to the completion of the Construction stage, the project Engineer should be looking at developing a Commissioning procedure. Commissioning is essentially turning on the equipment. However it is not a process that simply involves turning the equipment on and hoping for the best. Successful projects require commissioning planning and procedures, the level of detail depends on the complexity of the project. Commissioning planning will involved cold testing or pre-operational testing, hazard analysis, resource planning as commissioning is usually a task carried out by the Project engineer with the assistance of the contractor. If possible a line area representative should be present when commissioning takes place in order to continue to involve your client in the handover process.

All commissioning activities should be recorded, documented and stored as part of the project file. Some of the commissioning documentation will be included into the handover documents.

Handing over the project is the final activity that the Project engineer should be targeting to complete as soon as possible. Non timely handover results in the never-ending project which results in project failure. Handover includes handing the operation of the deliverables of the project to the operations dept for operation and the maintenance department for maintaining. Operations and Maintenance procedures are required to be written and included in the handover.

Finally close out signals the completion and end point of a project and is mainly an administrative function.

Table 5.8 – Commissioning, Handover and Close Out Stage templates.

Template No.	Template Title
COMM001	Commissioning procedures
HAN001	Maintenance Detail Work Procedures (DWP)
HAN002	GSAPP equipment Input Forms
HAN003	Notification of Intent to Make Live
HAN004	Production/maintenance Facility Handover Form
HAN005	Defects List Template
HAN006	Project Close Out Report
HAN007	Project Review and Benefits Capture
HAN008	Sample Newsletter
HAN009	Project Close Out Request

Refer to Appendix H for Commissioning, Handover and Closeout templates printout.

Tollgate 6
Commissioning, handover and
Close Out

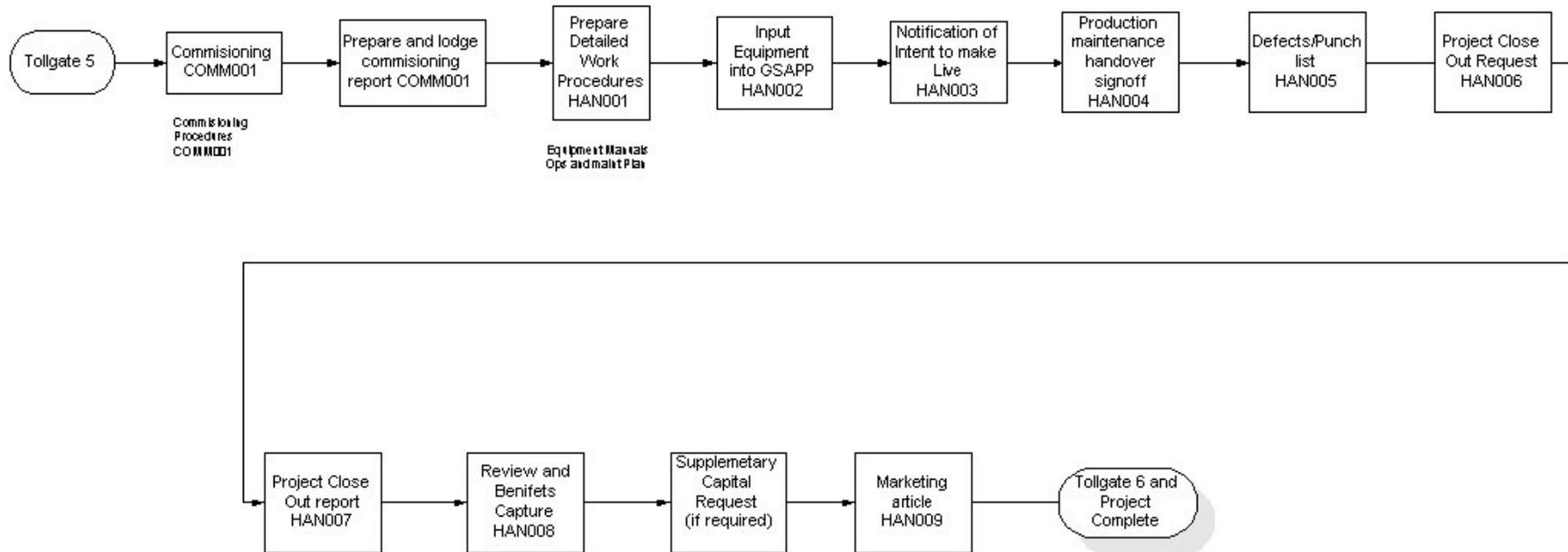


Fig 5.13 Process overview of the Commissioning, Handover and Close Out stage

5.8.2 Description of Templates and Requirements for Commissioning, Handover and Closeout Stage

5.8.2.1 Safety Considerations

Commissioning of equipment can be critical regarding safety of personnel and equipment. Commissioning is sublet to particular Mines dept. regulations, in particular:

- Notification to make live and
- Electrical log book

As part of the project safety management plan produced earlier in the project, the commissioning aspect of the project requires detailed analysis and risk management strategies and these strategies must be clearly understood and relevant procedures and training in place. Equipment vendor assistance may be required during commissioning and training activities.

BHJPBIO tagging procedures must be utilised and followed in the strictest manner whilst commissioning is taking place. All usual penalties for tagging breaches apply whilst commissioning is taking place.

5.8.2.2 Commissioning Procedures and Report COMM001

The nature and content of a commissioning procedure and subsequent report is dependent on the type and nature of the project. A pump project will have an entirely different commissioning procedure to that of a screen project. The template COMM001 is to be used as a guide in developing a procedure. Note that some procedures can and will be written by the equipment vendor.

It is important that all commissioning activities are documented and lodged with BHPBIO document control for future reference.

5.8.2.3 Maintenance Detailed Works Procedure (DWP) HAN001

A Detailed Works Procedure details the operation of the equipment and the steps required to undertake the required maintenance on a piece of equipment and is required for all installed equipment. The Template provided includes the following items:

- I. Operations procedure – May refer to a vendor-supplied document.
- II. Preparation – Tolls and personnel required
- III. Safety and isolation requirements

- IV. The detailed step by step procedure.
- V. Completion procedure
- VI. List of relevant drawings and documents
- VII. Bill of materials.
- VIII. Required maintenance regime.
- IX. Required spares list

The DWP document must be reviewed and accepted by the operations and line area department as part of the handover package.

5.8.2.4 GSAPP Equipment Input HAN002

All newly installed equipment must be placed into the BHPBIO business GSAPP software. The template HAN002 should be completed and handed to the GSAPP maintenance improvement group for inputting. Any Link one type documents should be attached for inputting into GSAPP under the equipment heading. Link one documents are electronic equipment manuals.

5.8.2.5 Notification of Intent to make Live HAN003

Mines department regulations state prior to new electrically powered equipment being commissioned and permanently switched on for use a “Notification of intent to make Live” must be issued to site to advise all workers of the new operation of the equipment. This must be communicated by the email and noticeboard system. It shall also be communicated directly to the relevant line area superintendent, manager and vice president.

It is also required under the mines Department regulations that any electrical work be logged into the electrical logbook located close to the relevant nominated electrical supervisor. The registered electrician undertaking the work must sign this of.

5.8.2.6 Production/Maintenance Facility Handover HAN004

The production/Maintenance handover form is the formal acceptance document that signifies that operations accept the equipment for use and maintenance accept the equipment for maintaining.

The process for handing over equipment (or handing back equipment) is as follows

- I. Arrange a meeting on site with the nominated operations and maintenance personnel.

- II. On site take the representatives over the equipment being handed back, highlight issues.
- III. Request they complete a punchlist/defects list after they have inspected the equipment. This defects list will be addressed as part of the project completion work as is conditional for complete acceptance by the line areas.
- IV. Present the Handover form HAN004 for signature with all drawings, manuals, commissioning details and any other relevant documentation.
- V. Place a signed copy of the handover form to the project file.

5.8.2.7 Punchlist/Defects List template HAN005

During handover the line area representatives are asked to complete a punchlist/defects list to indicate any deficiencies required to be completed. The items on the list are either agreed to be part of the project scope or not and addressed if required. Care must be taken to ensure that the work is part of the project work as there is a tendency for out of scope items to be noted at this point.

Generally, on completion of addressing all the issues on the form. The Project Engineer and line areas can consider the project complete and accepted.

5.8.2.8 Project Close Out report HAN006

This review should be completed so that the project group can learn from previous projects regarding what went well and what went bad. It is also used to report back to the Capital committee.

The complete project team in a group brainstorming type setting should complete the report. Not all items need to be addressed, only the relevant items require completion.

Client feedback is critical in measuring how the department is delivering successful projects to its clients.

5.8.2.9 Project Benefits Capture HAN007

The company is required to measure the benefits obtained by the business after implementing a project. Template HAN007 assists the company in measuring the benefits achieved and it should be completed by the project engineer after commissioning. Obtaining this information will assist in the department reporting end of year achievements and marketing itself within the business.

5.8.2.10 Sample Newsletter HAN008

In order to celebrate the completion of a project a newspaper article shall be written and submitted with a digital photograph to Public affairs department for inclusion into the BHPBIO chronicle.

5.8.2.11 Project Close Request HAN009

At this point the project should be closed administratively and the completion of this form and submitting to the capital projects officer will see the project formally closed.

5.8.2.12 Stage Summary

This Commissioning, handover and Close out stage of the project ensures the project is correctly handed over to the operating and maintenance departments. Many projects fail dismally at this last stage of the project and failure to correctly hand over may result in conflict between the project group and line areas

This chapter provided the minimum requirements in order that handover is correctly and professionally completed.

5.9 Chapter Summary

This chapter makes up the bulk of the Project Management manual as it describes in detail the requirements to progress a project from project inception to project completion going through the six tollgate steps of:

Concept

Definition and Planning

Detail Design and Planning

Tender, Contract and Award

Construction

Commissioning, Handover and Close out.

Detailed Template were developed made up of existing templates and forms currently in use and new templates and forms developed from reference to available literature and BHPBilliton Iron Ore governance requirements.

Chapter 6

Case Studies

6.1 Chapter overview

The process of developing this manual was predominantly a desk top exercise that delivered firstly a series of templates and documents that are required to progress a project from start to finish and a checklist directing the project manager from start to finish.

Obviously the best way to evaluate the proposed process developed is to test the process against actual projects to be completed. This chapter reports the outcome of that testing effort and seeks to critically analysis the results. It identifies the good outcomes and the parts of the process that can be improved removed or added to. Due to the short time available (approx 4-5 months) of time to actually test a project. It was decided that a number of projects currently at different stages of a project would be trialled to attempt to test all stages of the project process.

The projects tested were:

1. TS205 Concrete Sump Upgrade:

A redesign and reconstruction of a 6-year-old concrete slurry collection sump that receives wash down water in a drive in Front end loader sump and pumps the water away to be treated. The problem to be solved is slurry water fills the sump and spills onto an adjacent roadway and walkway resulting in wet and slippery walkways and an ever full sump. The project had not yet been started.

Project manager Paul Young

2. Stacker Jacking Pads:

A project at the tender and contract stage involving the installation of 47 land based piles and pile caps.

Project manager – External consultant reporting to Paul Young.

3. *Terrorist prevention project:*

A project to install a Closed Circuit Television security system using cutting edge technology video motion detection and alarming software in order that the Port Hedland Port facility comply with newly introduced federal legislation, The Maritime Security Act 2003. New project but commenced about one and a half months after the TS205 sump project.

Project Manager Paul Young

6.2 Testing the process

6.2.1 Concept Stage

TS205 Concrete Sump Upgrade: – The process of developing a scope statement was the first revelation of this project. The time taken to develop the scope statement of what was thought to be a simple project was surprising in its time but also in the realization that my initial comprehension of the project was probably only 25% correct. It took three iterations between the project manager and the client to finally identify the problem. I do not believe that there is anything wrong with the amount of time taken to determine the project problem and scope as it the most important part of the project. If this stage of the project is done poorly then it is likely the project will struggle to be successful simply because the client may not have their project solved.

After the problem and project scope was identified Preliminary engineering was completed via a project justification document. This document included preliminary cost estimates, schedules that were developed using the templates in the manual. A financial justification was completed, as was a preliminary project execution plan. The project justification document was then passed around all stakeholders and commented upon, with the final document, incorporating all comments, placed in the BHPBIO document storage system ready for reference when the project progresses early in the 04/05 financial year.

Without exception all the templates within the concept stage were utilised. An observation is that the preliminary project execution plan appears to be a waste of time with no real benefit to the client and the project engineer. This is because the

information contained is obvious and does not need to be stated at this time. It could be removed from the manual.

Stacker Jacking Pads – This stage had already been completed by others.

Terrorist Prevention Project – Once again the scope statement was the most contentious and discussed component of this stage. The Scope statement was signed after two iterations and required a great deal of patience and time with the client. The revelation of relief when the penny drops finally for both myself and the client is strong with a real sense of achievement. Preliminary work was completed included preliminary cost estimates and schedules that were developed using the templates in the manual similar to the TS205 project. A financial justification was completed, as was a preliminary project execution plan with the execution plan once again appearing to be a waste of time. The justification document was circulated to primary and secondary stakeholders for signature.

Concept stage key learning:

Scope statement - For each project, it took a surprisingly long time to develop and achieve sign off on this document. I do not believe the scope statement template requires any changing, rather I acknowledge that it will take time for an outsider to fully appreciate a problem and hence the time taken will be appropriate. The scope statement it is the pivotal document in any project process and will require a lot of work on behalf of the project engineer.

The project justification statement is also a valuable document in that it makes the project engineer undertake some preliminary engineering even if it only serves the purpose of gaining the attention of the client to become more involved once the justification document is complete. It is also noted that the preliminary documents were not lodged with document control. This is mainly due to an oversight by myself but highlights a flaw in the process due to a perceived lack of time by the project manager.

The peer review is a vitally important part also in that it encourages the project manager to complete paperwork and filing and complete all project requirements before an equal peer reviews his work.

Brief Summary of concept stage key learning's

- Scope statement – important
- Preliminary engineering – even if outcome is different to initial engineering work, this document gets people involved
- Templates – availability speeds up process. In the past different templates have resided in different parts of the department and a project engineer could never consistently have access to them. They also speed up cost estimation and scheduling.
- Preliminary project execution plan is probably not required
- Checklist invaluable in reminding what is required to be done next.

6.2.2 Definition and Planning stage

TS205 Concrete Sump Upgrade: – The scope statement was reviewed resulting in a minor change. The preliminary cost estimate was reviewed slightly. At this point in the process the engineer now seeks capital funds approval to progress to design by completing the business case presentation and a preliminary project execution plan. These documents were created using the templates and guides supplied, Other documents produced was a more detailed project schedule and the Aboriginal and environmental approval form that was approved by the environmental manager.

Finally prior to going for the capital request a group peer review was held with a senior peer and two junior peers where some minor corrections were made to the business case and preliminary engineering. Those involved in the peer review provided positive feedback and were generally impressed with the peer review process. Which is an activity not previously undertaken on site

The result of this work in this submission was the presentation to the Capital review committee being the easiest successful request for funds that I had ever been involved with. The capital review committee recognized that an appropriate level of preliminary engineering had been completed and that the figures presented were the best that could be presented at that time. Although only \$45,000 in design funds were sought, the whole project estimate of \$407,000 was approved with the condition that the project cost estimate was still only at +/-25% and that if cost estimates were to move significantly in any direction then a supplementary cost estimate would be presented.

I attempted to arrange a designing for safety review with the line area groups as per the project process but it was found that many of the relevant personnel were not interested in the process, possibly because it was perceived to be bureaucratic however this stage of the design process is a Mines department requirement under the Mines Safety and Inspection Regulations 1995. Consequently it was held but not with all the relevant stakeholders.

Stacker jacking pads – This stage had already been completed

CCTV – Reconfirmed project scope statement with client.

Once again the ease of obtaining the templates and the logical process easily facilitated the approval of \$565,000 of funds and a sole source document being signed off. The templates smoothed the approval process and in many cases anticipated the awkward questions that are sometimes asked by the Capital committee. In this case the following documents were tabled at the submission of capital funds:

- Scope statement
- Project Justification
- Business Case.
- Capital Allocation request
- Net Present Value analysis
- Detail schedule
- Power Point presentation (presented to the capital committee).

It appears that presenting these documents indicates to the capital review committee that adequate pre-work and front-end loading have been undertaken. A design for Safety review was undertaken with the client and no major issues were identified.

Summary of key learning's for Definition and planning stage

- A well organised and presented submission for funds facilitates the approval process.
- Difficult to motivate line area workgroups to participate in Designing for safety reviews.
- PowerPoint presentation no longer required due to comprehensive business case. This point is interesting due to the fact that the Powerpoint presentation was initiated by management to make the project engineers more accountable regarding scope of work, estimates confidence, business need, option

investigation and schedule confidence. All of these items are comprehensively covered in the Business case document which effectively eliminates the need for a power point presentation.

6.2.3 Detail Design and Planning stage

TS205 Concrete Sump Upgrade: –. A Consultant brief for design drafting work was completed using the design brief template and passed onto the consultant with the relevant preliminary engineering already undertaken. Whilst the design drafting work took place a design review was completed. Due to the documented process and available templates, this design review was easy to complete and was very beneficial in dragging information out of the line areas. The line area workgroup design review highlighted some very important design issues that had been overlooked to date.

The fabricator estimate budget costing method used utilizing the budget estimate scope of work PLA006 to firm up final construction costs and a construction estimate of \$207,000 was obtained. This gave a +/- 5% budget position of:

Table 6.1 – Revised TS205 Sump Project costing.

Preliminary engineering	\$21,000
Design drafting	\$8,000
Construction	\$257,000
Electrical upgrade	\$7,000
Project Mangement costs	\$15,000
Total	\$308,000

Hence the real budget position is known and the current forecast budget position is \$99,000 under budget. The project is on schedule and will come in under budget. It appears as though the project will be successful, however construction has not started. The true budget position can be confidently reported back to the capital review committee and the excess \$99,000 can be returned for expenditure on alternative projects.

As construction funds were previously approved in the Definition and planning stage, I was not required to apply for construction funds at this point.

The next stage was obtaining sign off to approach the market via the BHPBIO supply department using the Authority to proceed to market template. This stage of the process is a supply department requirement and in my opinion unnecessary and a waste of time however unless it is completed, the supply department will not issue formal tenders for the project engineer, hence this form is grudgingly completed if only to ensure progress to tendering.

Stacker Jacking Pads – This stage had again been completed however preliminary shutdown requests and work methodology forms were initiated to the line area planning co-ordinator in order to advise them of the forthcoming interface with their part of the operation. The preliminary notification of shutdown requirements in the area was well received and resulted in the project tentatively being included in their 3 monthly operations plan. This is an excellent result for the project as the construction activity starts to become part of the line area work..

Terrorist Prevention – The Project Execution plan was finalized and signed off by the client. The project plan indicated that this project was to be completed by an expert private company that had assisted BHPBIO with the preliminary engineering work done to date. This project will therefore not go out to tender and a sole source form will be required. Initial commencement of commercial requirements was instigated by completing an Authority to Proceed to Market. Six signatures are required and these were obtained. A Consultants brief was completed and sent to the sole source supplier and a reasonably accurate cost estimate was achieved but until the final design is firmed then +/- 5% cost estimation cannot be achieved. The only relevant step of this stage is to commence procurement planning with template PLA011.

Summary of key learning's for Detail Design and planning stage.

- The easy access to the templates and process makes this stage surprisingly simple. Project approvals were achieved with minimal problems due to sufficient preliminary engineering and front end loading being undertaken.
- Important to reconfirm the project scope at each stage. It is surprising how minor changes in the clients requirements can significantly alter a project. It is also important that a formal change request and register is completed when a change is made. This is communicate to the client that due to their requested

changes, delays or cost increases will result. Without this change management, the client will make changes, increase the scope and expect the project engineer to deliver the project in the same time frame and for the same budget.

- Important to conduct design review sessions with line areas. The TS205 design review highlighted several omissions that will contribute to a much improved deliverable for little or no extra cost.
- Budget estimation by local fabricator provides high level of forecast cost confidence.
- Documented checklists ensure peer review and design reviews undertaken. The template PRO001 placed on front of the project file is an excellent tool in recalling the progress of a project and identifying the next step required.

6.2.4 Tender ,Contract and Award stage

TS205 Concrete Sump Upgrade; - In this stage I was able to take two weeks leave and delegate the task of getting the project out to tender with an inexperienced graduate engineer. The documented process enabled the graduate engineer to prepare the necessary documents ready for tender. These documents were a scope of work and the pricing schedule. During my two weeks leave the project tender documents were issued. The graduate engineer also developed a safety and Environment plan from template TEN005.

A site meeting with the prospective tenderers was held using the agenda template TEN004

Tender prices were received back on Friday 22 October and a preliminary tender analysis was completed with TEN006. A Bid clarification meeting will be held on the 28th October 2004

Stacker Jacking Pads – This project was ready to go out to tender. Two scope of work documents had been written by a previous graduate engineer as there were two separate contracts to this project. The graduate engineer had used an old template as the basis of his scope document. The scope of work documents were reviewed and it was considered that the documents focused too heavily upon commercial issues and that these documents should be technical type documents. Significant work to simplify them was required.

This highlights the benefit of the one location philosophy for document templates. The Template for the mandatory tenderer site meeting was used with no major issues. A Safety and environment plan template was provided to the external Project Engineer, Hence BHPBIO safety requirements should be met during the construction phase. The first tender was issued with an authority to proceed to market and the manual process was followed in order to award the first contract. The second tender period closed on the 28th October.

Terrorist Prevention –At this point I am ready to write a scope of work for this project however it has not yet been done due to other pressing commitments. .This project appears to be behind schedule and is lacking resources. However the next steps are is to use template TEN002 and TEN003 to write the tender documentation and issue the tender.

Summary of key learning's for Tender, Contract and Award stage

- Simplified scope of work makes for an improved scope of work document.
- Templates for tender site meeting and bid clarification meetings were very useful.

6.2.5 Construction

No construction work has commenced, as at 28th October 2004 on the three test projects however a separate project that I have been progressing, a 1.2 million workshop construction project has commenced construction as at 21 October 2004 hence I have tested some documents at this stage. The documents I have tested were the Prerstart meeting agenda, the construction schedule, note to site, the preliminary shutdown planning form and the construction progress agenda. All documents appear to work fine. Possibly more work could be done on the construction progress agenda, as it was a bit brief in content.

The real benefit appears to come where I was able to prepare these documents in hardcopy format in exceptionally quick time. Meaning I can prepare for a meeting with little time, in one case the construction progress agenda I simply printed out the agenda, hand wrote the project name at the top of the document and I was prepared for the meeting within 30 secs.

Summary of key learning's for Construction stage

Generally during construction, events occur at a rapid rate and being organised is a key part of maintaining control of a project. Having the templates organised logically enabled me to attend meetings with an agenda and generally appear to the contractor undertaking the work that I was in control and that he should lift his performance to match mine. Also pre-shutdown planning with the line area personnel demonstrates to these stakeholders that the project is being run professionally with adequate planning.

6.2.6 Commissioning, Handover and Close out

No handover work has commenced, as at 28th October 2004 hence this stage has not been tested.

6.3 Chapter Summary

From the testing process completed to date of which will be ongoing, it appears as though the process is delivering the expected benefits to the three test projects chosen and a fourth project used to test the construction stage. Some modifications were made to the templates as the projects moved through the process with the main change being the Scope of Work document which resulted in a simpler and smaller document.

It is possible to have a number of different projects at differing stages of completion and given that the correct documentation has been completed in particular the checklist PRO001 being placed at the front of the file it is subsequently easier to pick up a job after having not looked at it for a time and immediately know where the project is at and what is required next to be done.

The Testing process will be ongoing until the three projects can be completed handed over and closed out.

Chapter 7

Discussion

7.1 Discussion

Simply having a process mapped out makes it incredibly simpler for the project engineer to progress through a project. In the past from my own experience, required steps are often forgotten or overlooked and the result is an unorganised panic at various stages of a project. The benefits to me personally of the work completed in this research project are enormous. The case studies demonstrated to me first hand the benefit of having the process, checklists and templates

A key learning for myself from this research project is that with the process, new starters, junior staff and non-professional staff can use the guide to assist them in finding what documents are required, what step is next and a one stop storage area for all the templates and forms to be stored for use when required.

In the future, for Engineering Services there should be no further need to store templates on personal hard drives. This will prevent changes in documents and result in consistent documents I have been able to enlist other engineers to progress projects on my behalf in my absence using the manual and the templates. I have used the PRO001 checklist to quickly remind myself where I am up to with a project and any engineer or finance officer can refer to the project files and determine where the project is at with respect to progress and financial issues.

Project approval, once very difficult, was very easy to achieve for the case study projects which for future project saves the project engineer significant delays. The approval documentation such as the Business Case, the Project Execution Plan and the Financial Analysis pre-emps all the questions and technical requirements of a project, so that the Capital committee is confident that the appropriate level of engineering, business need and benefits to the business have been adequately investigated. This level of front end loading also allows projects that have no business need or may impact negatively on the business elsewhere are identified and stopped. Thus directing those capital funds to projects that will deliver more benefits to the business.

In my opinion the manual has been successful in delivering improved project performance to the projects that have been tested.

Technically with respect to project Engineering the following key points developed out of this project were:

- The importance of a Scope statement and that it is signed off by the client.
- Managing project change is vital in reporting back the consequence to the client of changes. By reporting the cost or schedule consequences of a project scope change to the client, some of the unnecessary changes are rejected when they are made aware of the consequences.
- Line area input is vital, if the project engineer progresses a project without consulting the line areas, a tendency for the line areas to work against the project can start to develop. This occurred very briefly with the TS205 project and could have caused issues before it was resolved quickly as a result of a line area design review.
- Many of the work groups still reluctant to be involved in safety type reviews. Perhaps they do not fit the male mine site workplace culture.
- Shutdown pre-planning helps alleviate the line area concerns with other groups shutting down their plant. It indicates that the shutdown is well planned.

Chapter 8

Conclusions and Further Work

8.1 Achievement of Project Objectives

All of the objectives noted in the project specification have achieved and I am extremely pleased with the results to date. I undertook significant research on specialist project management processes by reading and referring to the large amount of information and references available. As part of that research process 4 books were purchased that will be retained for career development and refinement of the manual.

Evaluation of project management tools and processes with respect to inclusion into a project management manual was undertaken by developing templates, checklists and forms that make up the bulk of the appendices and testing them for their effectiveness. The results of the testing process is discussed in chapter 6 where it is reported that the projects are currently tracking successfully with regards to client and management satisfaction, budget and schedule considerations.

A project process that has been mapped graphically was designed that provides the user with tools and processes to complete a project from concept to handover. The documented process, when followed ensures the user complies with BHPBilliton's Iron Ore financial and commercial governance requirements and should assist in delivering successful projects. The outcome of this objective is the production of the Project manual process which has been articulated in chapter 5. Background of where the manual is to be utilized is included in chapter 2.

Numerous templates have been developed and make up the bulk of the Appendices. An overall checklist document PRO001 is a detailed checklist of the process from start to finish that the Project Engineer refers to throughout the project process. Process flow diagrams are included for each stage of the project process.

A preamble to the overall project management process and to each of the smaller manageable broken down tasks has been completed in chapter 5 of the manual.

The use of four Case studies for testing the process was completed and is reported in chapter 6 of the manual. As a result of the Case studies some changes have been made and further changes will be made.

8.2 Further work

Testing of the process has not yet been completed comprehensively on the Construction stage and Commissioning, Handover and Close Out stage as the projects being tested had not yet reached that stage. As the projects progress into this stage, key learning's will be apparent and can be reported upon and incorporated into the manual

The next vital stage for this research project is to implement the manual and its requirements within the Engineering Services project group. This should occur after the minor changes and improvements that have been discovered in the testing stage have been implemented and at the completion of testing the final commissioning,, Handover and Project close out stage. This testing will occur over the November 2004 to January 2005 timeframe.

After implementation of the manual and process no doubt project engineers will make comments and suggestions, which may or may not be incorporated into the manual. In reality a document such as a process manual will never be a static document due to the ever-changing nature of engineering, workplaces practices and personnel. A first issue such as this document will in the first year of its life, most probably undergo significant rework as it is introduced into the workplace.

There is no doubt some omissions and process errors will be corrected with subsequent issues.

It is suggested that allowance should be made for the document to be reviewed at least on an annual basis. If this annual review is not done then the document will very quickly cease to be contemporary and be discarded.

REFERENCES

Adedeji, B., B., (1991), *Project Management Tools for Engineering and Management Professionals*, Industrial Engineers and Management press – Institute of Industrial Engineers, Norcross Georgia, USA.

Gilbreath, R. D., (1986), *Winning at Project Management – What Works, What Fails and Why*, John Wiley & Sons, Brisbane.

Greer, M., (2002), *The Project Managers Partner*, 2nd Edition, Amacon, New York, USA.

Haines Consulting, BHPBilliton (2001), *Advanced Project Management*, BHPBilliton Project Development Services, Melbourne, Australia.

Hancock, N., (2004), *Research Project Study Book - A*, Distance Education Centre, USQ, Toowoomba, Australia.

Lewis, J. P., (2000), *The Project Managers Desk Reference*, 2nd Edition, McGraw Hill, USA

Lock, D., (1996), *Project Management*, 6th Edition, Gower Publishing Limited, Vermont, USA.

Martin, P., Tate, K., (1997), *Project Management Memory Jogger*, Goal/QPC, Salem, USA.

Rosenau, M. D., (1981), *Successful Project Management*, Van nostrand Reinhold Company, New York.

Smith, K. A., (2000), *Project Management and Teamwork*, McGraw-Hill Higher Education, USA.

Young. T. L., (1996) *The Sunday Times – Successful Project Management*, Sunday Times Publishing, London, UK.

A publication of the BHPBilliton (2003), Project Management Services Group, *Small Project Management Framework*.

Handouts, BHPBilliton (2003) - *Enterprise Wide Risk Management System*, BHPBilliton Pty Ltd, Melbourne, Australia.

EWRM STANDARD NO. 1 – RISK RANKING AND MEASUREMENT.

EWRM STANDARD NO. 1.2 –HOW TO USE THE RISK RANKING SYSTEM

EWRM STANDARD NO. 2 – RISK ASSESMENT METHODS (Simple Method)

Appendix A

Project Specification

Attached on the following page.

University of Southern Queensland
Faculty of Engineering and Surveying

**ENG 4111/2 Research Project
PROJECT SPECIFICATION**

FOR: **PAUL EDWARD YOUNG**
TOPIC: **PROJECT MANAGEMENT MANUAL**
SUPERVISOR: **Jo Devine**
ASSOCIATE SUPERVISOR: **Michael Shenton Senior Project Engineer BHPBilliton Iron Ore.**

PROJECT AIM: To develop and test a Project Management Manual to outline the steps to successfully complete a project from initiation to handover for BHPBilliton's Iron Ore Port Engineering Services Project group.

PROGRAMME: **Issue B, 17th August 2004**

1. Research Information on specialist project management processes.
2. Critically evaluate project management tools and processes with respect to inclusion into project management manual.
3. Brainstorm additional and alternate tools and processes relevant for inclusion into project management manual
4. Design a project manual process that provides the user with excellent tools and processes to complete a project that will ensure the user complies with BHPBilliton's Iron Ore financial and commercial governance requirements and delivers successful projects.
5. Break the project manual process down into small manageable parts.
6. Design a suite of tools to apply to the project management process including templates, checklists and process flow diagrams.
7. Provide a preamble to the overall project management process and to each of the smaller manageable broken down tasks.
8. Test the process using actual projects, report on the effectiveness and adjust templates and process to suit

If time permits (or stretch targets)

9. Provide a hyperlinked interactive CDROM that provides the complete manual electronically and hyperlinked to templates, checklists and process flow diagrams.
10. Produce a automated cost and work completed tracking and reporting spreadsheet.

AGREED: *P. Young* (student)
Dated: 19 / 8 / 04

J. Devine (Supervisor)
Dated: 1 / 10 / 04

M. J. Shenton (Ass. Supervisor)
Dated: 19 / 8 / 04

Appendix B

Client survey

1. Do you think Engineering Services performance is a Good, Average or Poor performer?

Good _____ **Average** _____ **Poor**

2. Are the services provided by Engineering Services above, meets or below your minimum expectations?

Above _____ **Meets** _____ **Below**

3. At the completion of a project in your area, have the project objectives usually been satisfied?

Yes _____ **No**

4. Does Engineering Services staff adequately consult you during the project process?

Yes _____ **No**

5. Is the performance of Engineering Services staff/contractors during shutdowns and construction stages to your satisfaction?

Good _____ **Average** _____ **Poor**

Appendix C

Project Process Templates

PRO001 – Project Checklist Template

Project No.	Responsible Person	Start Date	Required Completion Date	Practicable Completion Date	Required Post Commissioning Review Date	Post Commissioning Review Completion Date

<p>Project Title:</p> <p>Client Contact:</p> <p>Team Members:</p>
--

	Project Management Milestones	Mandatory Y or N	Completion Status or NA	Reference
1.	# 1 Conceptual Engineering (Tollgate 1)			
2.	Raise Engineering Work Request (EWR)	Y		CON001

	Project Management Milestones	Mandatory Y or N	Completion Status or NA	Reference
3.	Prepare a Project Scope Statement	Y		CON002
4.	Develop concepts and narrow down concept(s) to perform preliminary engineering on.	Y		
5.				
6.	If Consultants are used, Prepare Consultants brief to undertake preliminary engineering (If required to be completed by consultant) Minor Functional Specifications can be incorporated in Consultants Briefs.	Y		CON003
7.	Prepare Project Justification	Y		CON004
8.	Class D Cost Estimate (See Note 1 below) +/- 50% cost estimate, +/-10% - 25% contingency	Y		CON005
9.	Preliminary Schedule	Y		CON006
10.	Preliminary Project risk/hazard analysis Economic justification			EWRM STANDARD NO. 1 – RISK RANKING AND MEASUREMENT. SPR-OHH-SAF-012
11.	Preliminary financial Analysis			
12.	Feasibility Project Execution Plan			CON007
13.	Designing for safety review stage 1			SEP58
14.	Concept Peer Review	Y		CON009
15.	Lodge Project justification with document control	Y		SEP15, SEP47
16.				

	Project Management Milestones	Mandatory Y or N	Completion Status or NA	Reference
17.	Project Feasibility (Tollgate 2)			
18.	Confirm project scope			CON002
19.	Class C Cost Estimate (See Note 1 below) +/- 25% cost estimate, +/-5% - 10% contingency			FEA001
20.	Project Business case	Y		FEA002
21.	Option Analysis			
22.	Update Financial Analysis	Y		
23.	Problem risk analysis Economic justification			EWRM STANDARD NO. 1 – RISK RANKING AND MEASUREMENT. SPR-OHH-SAF-012
24.	Revise Project Schedule			FEA004
25.	Prepare Preliminary Project execution Plan	Y		
26.	Project risk/hazard analysis Economic justification			EWRM STANDARD NO. 1 – RISK RANKING AND MEASUREMENT. SPR-OHH-SAF-012
27.	Communications and reporting plan			
28.	Scope change management document (To manage client requested scope changes)			PRO004, PRO005
29.	Project Environmental and Aboriginal Heritage Review			PEAHR form
30.	Feasibility peer review			FEA006
31.				
32.	Prepare Capital Allocation Request for Design funds (attached preliminary GA or Block Diagram or PFD or P&ID).	Y		FEA007
33.	Prepare Power Point presentation			FEA008
34.	Present CAR to Work Crew receive comments	Y		

	Project Management Milestones	Mandatory Y or N	Completion Status or NA	Reference
35.	Modify business case if required			
36.	Make appointment with capital projects officer to present to capital committee			
37.	Funds Authorisation (CAR is approved, if not cost stay operations)			
38.				
39.	Prepare preliminary Drawings – GA/Block Diagrams/PFDs /P&IDs/FDs/Plot Plan/Equipment Location Plan			
40.	Preliminary Functional Description; Block Diagrams	Y		
41.	Prepare Functional Specifications if Required			
42.	Preliminary Design Review	Y		
43.	Stage 2 Designing for safety review			SEP 58 FRM-DEV-GEN-014 (Project Safety Review Form)
44.	# 3 Detail design, planning and approval (Tollgate 3)			
45.	Prepare Detail Design consultants brief (If externally being designed)			PLA001
46.	15% design review			PLA002
47.	85% design review			PLA002
48.	Prepare and issue Functional Specifications/Equipment Datasheets (Mandatory for Datasheets only)	Y		
49.	Issue Functional Descriptions	Y		
50.	Issue Detail Design Drawings; Evaluation of design alternatives			
51.	Perform Detail Design Review	Y		
52.	Stage 3 Designing for safety review	Y		SEP 58

	Project Management Milestones	Mandatory Y or N	Completion Status or NA	Reference
53.	Line Area Approval of Design Package	Y		
54.	Issue Prelim Scope of Works, drawings to Constructors Seek market budget cost,schedule estimates	Y		SEP 10
55.	Class B Cost Estimate (See Note 1 below) +/- 5%-15% cost estimate, +/-2% - 5% contingency			CON005
56.	Finalize Project Execution Plan			PLA004
57.	Revise Project Schedule			FEA007
58.	Detail design peer review			PLA005
59.	Prepare Capital Allocation Request for Construction funds (Include GA or Block Diagram or PFD or P&ID). Include costs to date in total sum.	Y		PLA007
60.	Prepare Power Point presentation			PLA008
61.	Make appointment with capital projects officer to present to capital committee			
62.	Funds Authorisation (CAR is approved, if not all cost revert to operations)			
63.	Authority to proceed to market/contract			PLA009a, PLA009b
64.	Commence preliminary shutdown Planning			PLA010
65.	Equipment procurement plan			PLA011
66.	# 4 Tender – contract award (Tollgate 4)			
67.	Commence Equipment Procurement			PLA011
68.	Refer to commercial requirements			TEN001
69.	Prepare and issue scope of work and annexure A			TEN002, TEN003
70.	Issue Tender Package			Contracts Dept.
71.	Site meeting			TEN004

	Project Management Milestones	Mandatory Y or N	Completion Status or NA	Reference
72.	Bid Clarification Meetings			TEN005
73.	Prepare/Revise Mandatory Documents as per Note 5 below.	Y		
74.	Authority to proceed to contract Long form Short form	Y		TEN006
75.	Prepare Safety Environmental Management Plan			TEN007
76.	Prelim Tender analysis			TEN008A
77.	Final tender evaluation			TEN008B
78.	Stage 4 Designing for safety review			TEN009
79.	Award Contract			Contracts Dept.
80.	# 5 Construction (Tollgate 5)			
81.	Class A Definitive Cost Forecast (See Note 1 below)	Y		CON005
82.	Prepare Shut-down Project Schedule – Submit to operations and maintenance			CONS002
83.	Revise Project plan to contractors schedule	Y		PLA004
84.	Construction Prestart Meeting			CONS001 Eng Services WIN-DEV-GEN-016 (Minor Pre-Start Meetings)
85.	Issue Safety/Quality Plan (By Contractor) - Approve	Y		
86.	Line Area/site Notification	Y		CONS003
87.	Project Kick-Off Meeting	Y		Eng Services WIN-DEV-GEN-016 (Minor Pre-Start

	Project Management Milestones	Mandatory Y or N	Completion Status or NA	Reference
				Meetings)
88.	Issue and obtain approval of Shut-Down Plans	Y		CONS004
89.	Access permits, Job safety Analysis			
90.	Execution of Work on site – Conduct Safety Tool Box Meetings/SAOs	Y		Contractors management Plan
91.	Progress Reporting			CONS007
92.	50% Safety, Environmental and quality management review			CONS005
93.	Pre-Operation Review request			CONS006
94.	Crane request			
95.	# 5 Commissioning and Start-Up			
96.	Prepare Commissioning and Start-Up Project Schedule			
97.	Check installation against Scope statement and Functional Specification/Equipment Datasheets	Y		
98.	GSAPP equipment input sheets			HAN002
99.	Commissioning PHA (Complete Punchlist Form); Evaluation of final changes – technical and operating requirements	Y		SEP 58 FRM-ESA-GEN-0008
100.	Complete DWP's, operating procedures			HAN001
101.	Notification of intent to make live			HAN003
102.	Issue Facility Hand-Over Notice (FHN) and reference status of Punchlist Form	Y		Eng Services WIN-DEV-033 (facility Handover Procedure) HAN004
103.	Defects list			HAN005

	Project Management Milestones	Mandatory Y or N	Completion Status or NA	Reference
104.	As-Built Commissioning of Key Documents (See Note 5 below)	Y		
105.	Training of Production/Maintenance personnel			
106.	Project Close out Request	Y		HAN006
107.	Project Close out report			HAN007
108.	Benifets capture			HAN008
109.	Celebrate via Iron Ore Chronicle (Key Projects Only)			HAN009

Key Notes

Class of Cost Estimates

	Worst Case Cost Overall Contingency
Class A Definitive Cost Estimate accurate to $\pm 2\%$ to $\pm 5\%$, incorporates a contingency of 2 to 5% (allowance for unlisted items 2 to 5 %)	$\pm 10\%$
Class B Cost Estimate accurate to $\pm 5\%$ to $\pm 15\%$, incorporates a contingency of 2 to 5% (allowance for unlisted items 5 to 15%)	$\pm 21\%$
Class C Cost Estimate accurate to $\pm 10\%$ to $\pm 25\%$, incorporates a contingency of 5 to 10% (allowance for unlisted items 10 to 25%)	$\pm 37.5\%$
Class D Cost Estimate accurate to $\pm 25\%$ to $\pm 50\%$, incorporates a contingency of 10 to 25% (allowance for unlisted 50%)	$\pm 87.5\%$

Mandatory documents that need as-built

- a) Functional Descriptions and associated Cause and Effect Charts
- b) PLC Software Logic
- c) Electrical and Instrumentation Drawings
- d) Process Flow Diagrams (PFDs)
- e) Piping and Instrumentation Diagrams (P&IDs)
- f) Hydraulic or Pneumatic Schematic Diagrams
- g) Equipment Datasheets
- h) DWPs (Detail Work Procedures), SOPs (Standard Operating Procedures), SWIs (Safe Work Instructions), Laminated Isolation Plant Sheets
- i) Composite Services Drawings (Underground Services)

PRO002 - Filing structure for Engineering Services projects

This structure is intended for both electronic and hard copy filing.

Electronically, the root directory sits on the “departments on Ironhed-file server” and will be: H:/Engineering Services/Projects. There are 5 layers of subfolders sitting under this:

Layer 1 – Type of project (electrical or non electrical)

Layer 2 – Whether a project is work in progress (active or inactive)

Layer 3 – For active projects the WBS or EWR number and description. For inactive projects this is for categorisation purposes.

Layer 4 – The subfolders have been set up to reflect different stages in the lifecycle of a project.

Layer 5 – The subfolders at this level are designed for filing purposes.

Attached is a graphical representation of the above.

The rationale behind the structure is:

Layer 3

Active projects: Most projects begin life with an EWR number (Engineering Works Number). If a project is capitalised the EWR number will be overwritten by the first level GSAP WBS number for the project (I.e. 5012.C.50020). It has been decided that although there may be sub projects underneath this (I.e. 5012.C.50020.010, 020... etc.) that these will not have their own subdirectories as it could lead to confusion.

Inactive projects: The folders have been categorised by the 3 main reasons why a project could be inactive – It could be completed, on hold or cancelled. If a project has had any sort of work done on it, the suggestion is that the whole project folder be moved from active to inactive.

Layers 4 & 5

All subfolders have been prefixed with a 2-digit code (from 01 to 09) in order for the folders to reflect different stages in the lifecycle of a project with the exception of correspondence and to display as such. The logic behind the structure is:

01 Correspondence.

All non specific correspondence will be stored here. If the correspondence contains, for example, an approval from the line area for work done or a brief, then these will

be filed accordingly in the relevant subfolder. One possibility for electronic storage is to use the prefix *yy-mm-dd* when saving. This will save in date order. There is a subfolder structure of in and out so to separate incoming and outgoing correspondence.

02 Concept

All documentation relating to the feasibility stage

03 Definition and Planning

All documentation relating to the feasibility stage.

04 Detailed design and Planning

All documentation relating to the Detailed design and Planning stage.

05 Tenders and Contracts

All documentation relating to the tender stage.

06 Construction

All documentation relating to the construction stage.

07 Commissioning and Handover

All documents relating to the commissioning and handover of projects – I.e. Manuals, procedures, work instructions, punchlists, warehouse inventory etc.

08 Project reporting

Monthly progress report, minutes of progress meetings

09 Change Control

010 Safe Working

The electronic copy of the Safety and environmental management plan, plus the hard copies of all signed access permits, JSA's and SAOs.

PRO003 - Lever arch File Binder Template



Engineering
Services

Project:

CD1 Spillage
Reduction

WBS No:

5012.C.50028

Client:

Crushing

PRO004 Project File Contents Template

01 CORRESPONDENCE

- 1.1 Incoming general correspondence
- 1.2 Outgoing general correspondence

02 CONCEPT

- Job Request
- Project Scope Statement
- Feasibility Consultants brief
- Project Justification
- Conceptual cost estimate
- Conceptual Schedule
- Conceptual Project Execution Plan
- Stage 1 Designing for Safety Review
- Conceptual Financial Analysis
- Conceptual Peer Review
- Change control form

03 Definition and Planning

- Detailed Cost Estimate
- Business Case
- Prelim Project execution Plan
- Detailed Schedule
- Environmental and Aboriginal Review
- Design Capital Allocation Request
- PowerPoint Presentation
- Stage 2 Designing for Safety Review
- Peer Review

04 Detail Design, Planning and Approval

- Design Cost Estimate
- Design Review
- Stage 3 Designing for safety review
- Final Project Execution Plan
- Detail design peer review
- Authority to Proceed to Market
- Construction funds Capital Allocation Request
- PowerPoint Presentation
- Procurement Strategy

05 Tender and Contracts

- Request for Tender
- Scope of Work

- Annexure A-Pricing Schedule
- Site Meeting
- Authority to Proceed to Contract
- tender Analysis
- Safety and Environmental Plan
- Stage 4 Designing for safety Review

06 Construction

- Prestart Meeting
- Construction Schedule
- Shutdown Request
- Site Notification
- Shutdown Planning
- 50% safety quality and Enviro review
- Pre-operation review
- Contractor progress Review

07 Commissioning Handover Close out

- Maintenance Procedure
- GSAPP Equipment Input
- Notification of intent to make live
- Production maint Handover
- Defects List
- Project close out
- Benefits Capture
- Contractor progress Review
- Invoices
- Claims

08 Project Reporting

- Progress reports

09 Project Change Control

Change requests
Change register
Change control signoff

10 Safe working/ Enviroment

Safety management Plan

Safe act observations
Incident reports

PRO005 - Project File Summary Template

DESCRIPTION: _____

WBS APPROVAL: . .

DEPT: _____ CLIENT: _____

PROJ MGR: _____ EWR #: _____

DOCUMENT TYPE:

SCOPE STATEMENT	<input type="checkbox"/>	PROGRAM	<input type="checkbox"/>	CAR	<input type="checkbox"/>
PROJ BREIFING FORM	<input type="checkbox"/>	ATPTM	<input type="checkbox"/>	SOW	<input type="checkbox"/>
CONSULTANTS BRIEF	<input type="checkbox"/>	ATPTC	<input type="checkbox"/>	PEP	<input type="checkbox"/>
PROJECT JUSTIFICATION	<input type="checkbox"/>	(TICK BOX)	<input checked="" type="checkbox"/>		

TENDER:

APPROVED CONTRACTOR: _____

TENDE

VALUE: \$

REC'D ATPTC / ATPTM (FILED)

BUDGET:

BUDGET: \$ _____

APPROVED CAR: \$ _____

CAR PRESENTATION:

DATE PRESENTED: _____

VARIATIONS:

NEW SCOPE AGREED

CAR SUPPLEMENT REQ'D: Y / N

DATE PRESENTED:

CONSTRUCTION:

	PLANNED	ACTUAL
COMMENCEMENT DATE:	<input type="text"/>	<input type="text"/>
SHUTDOWN REQ'D Y / N	No REQ'D	<input type="text"/>
APPROX DURATION		<input type="text"/>
COMPLETION DATE:	<input type="text"/>	<input type="text"/>
COMMISSIONING / HANDOVER DATE:	<input type="text"/>	<input type="text"/>

COMMENTS _____ :

PR0006 – Project File note Template

PROJECT MANAGEMENT FRAMEWORK

PROJECT FILE NOTE TEMPLATE

Project:		
Project Manager:		
Date:	Initiator:	Ref No:
<input type="checkbox"/> Meeting	With:	
<input type="checkbox"/> Telecon	Of:	
Subject:		

Signed:

Distribution:

PRO011 – Scope change RequestTemplate

PROJECT MANAGEMENT FRAMEWORK

PROJECT SCOPE CHANGE REQUEST TEMPLATE

Project:	West Yard Workshop		
Project Manager:	Paul Young	Sponsor:	L. Jones
Requested By:	B. Lynne		
Request No:	1	Date:	10.4.04

Scope Change Description *(Briefly describe the scope change proposal)*

Relocation of proposed workshop from present location to new location adjacent to CV725, CV720.

Reason For Change Of Scope Proposal *(List the reasons for proposing this scope change)*

Future plans for further expansion of the Western yard may see the construction of a Transfer station at the current proposed location of the west Yard. Required to relocate due to this possibility.

Business Justification For Scope Change *(Describe the benefits to the business that are anticipated from implementing the proposed scope change)*

Allows for future Growth of business if required

Estimated Budget Variation *(Provide an estimate of all cost variation to the current project budget)*

Approved Budget - \$

Cost Code	Description	Variation Estimate	SUMMARY	
			Current	
			Forecast:	
			Scope change Estimate:	
			New Forecast:	

Effect On Project Schedule *(List all areas where the project schedule will be effected by this proposed change)*

Area	Schedule Consequence	SUMMARY	
Redesign		Current Completion	
Construction		Date:	
Delay		Time Consequence:	
		New Completion Date:	

Other Consequences *(List any other consequences to the project deliverable such as quality, the effect on the risk and/or opportunity profile, resources, etc)*

Nil

Approvals *(Significant changes will require referall to the Client and capital committee)*

--	--	--	--

PRO014 – Project Progress Report Template

Project name	
5012.C.XXXXXX	Client (Responsible Person): Name
Project Status as of date	Project Manager (Responsible Engineer): Name

PROGRESS**General Progress Information:**

 Developing a CAR for installation of pilings and pads to be presented during first capital committee meeting next financial year. Budget estimate of \$745,000 received from Frankpile.
--

Forecast completion/handover date -

BUDGET**Approvals/Expenditure/Committed to date:**

	Approved ¹	Spent + Committed		Remaining	Forecast Total
YEJ03	\$20,000	\$19,750	\$0		\$19,750
YEJ04	\$40,000	\$24,606	\$16,158	\$2,000	\$42,764
Total	\$60,000	\$60,514		\$2,000	\$62,514

Note ¹: Approved as part of presentation to Capital Committee**General Budget Comments:**

<i>Budget on track.</i>

1. GENERAL PROJECT ISSUES:**Safety, Commercial Risk, Other****Shutdown Planning**

Scope of each required shut down	Planned time/date	Achieved time/date	Duration	Plant affected	Comments
Too early to define					



PRO015 – Project Meeting Minutes TemplateOperating Excellence
BHP Minerals*Agenda*

Friday, August 13,

FROM: Paul Young**SUBJECT:** TS205 Sump upgrade**DATE:** Friday, 13 August 2004**TIME:** 1300 hrs**LOCATION:** Small crushing conf room**ATTENDEES:** P. Young, S. Vo, P. Owen, A. Hogan, R. Harrington, K. Jensen**COPIES:** K. Ravn

<i>OUTCOMES</i>	<i>AGENDA</i>			
	<i>What</i>	<i>Who</i>	<i>Process/Tool</i>	<i>Time</i>
Review Scope:	Does the scope statement reflect what needs to be done: Am I missing anything Objectives: <ul style="list-style-type: none"> • Prevent road flooding • Provide safe walkways • Dump p8 fines chute hosedown runoff into sump directly. • Provide agreement with Operations regarding how often sump needs to be cleaned out. 	All		5 mins

Review current Proposal	<p>I am proposing to:</p> <ul style="list-style-type: none"> • Increase size of sump by doubling present volume • Provide a circular pumpwell instad of present square well similar to TS26 where the performance of the sump is perceived to be OK • Install raised gridmesh walkways to provide a slightly elevated walkway out of the mud and water. <p>Assumptions: Pump can adequately pump fines and sirty water,</p>	PY		5 mins
Recive Feedback form attendees	<p>Throw your biggest rocks at the proposal, Now is the time to let me know if what I am proposing is good or bad. No detail design work can commence until I get your thoughts.</p>			

Appendix C

Concept (Tollgate 1) Templates

CON001 – Job Request Template

ENGINEERING SERVICES DEPARTMENT

ENGINEERING JOB REQUEST

Department Ordering: _____ Date: _____

Job Title: _____

User Dept Contact Person: _____ Extn No: _____

Details of Request _____

Proposed / Desired Timing - Start Date: _____ Completion Date: _____

Budget: _____ Capital Job No: _____

Work Order No: _____ Cost Code: _____

x	SERVICE REQUIRED
	Feasibility Study
	Preliminary Engineering
	Detail Design
	Preparation of Scope of Work
	Preparation of Estimate
	Prepare Proposal / Tenders
	Project Management
	Construction / Commissioning
	Inspection
	As Built Drawings
	Drafting

APPROVED BY REQUESTING DEPARTMENT

Requesting Officer

Department Superintendent

<p>JOB REQUEST ACCEPTED: _____ <div style="text-align: right; margin-left: 200px;">Engineering Services Discipline Supervisor</div></p> <p>ENTERED INTO DATABASE: _____ <div style="text-align: right; margin-left: 200px;">Job Number</div></p>
--

CON002 – Project Scope Statement Template**PROJECT MANAGEMENT FRAMEWORK****Definition and Planning****PROJECT SCOPE STATEMENT**

Project:			
Project Manager:		Sponsor:	
Requested By:			
Request No:		Date:	

Project justification/Problem statement: *(Briefly describe the need)*

The CN16b sump located at the end of the Finucane Island jetty experiences both pipe and sump blockages and system failure. This results in slurry overflow into the Port Hedland harbour, which contravenes BHPBIO environmental regulations. The risk of this overflow must be minimised in order to prevent discharge to harbour waters.

Overview of deliverables: *(Include prelim schedule and cost estimate as an attachment)***Stage 1**

1. Modify existing 30kw pump at CN16B to lower the pump suction at CN16b head sump
2. Replace exist 13,5kw pump to a 37kw pump at CN16B head sump.
3. Construct new concrete intermediate sump on the FI mainland complete with 55kw pump.
4. Permanently install the existing 126 Dia pipe from CN16B head to intermediate sump.
5. Permanently install the existing 140 Dia pipe CN16B head to intermediate sump.
6. Supply and install 160Dia pipe from CN16B intermediate sump to CN16B tail end sump/

Stage 2

7. Refurbish and Install exist 55KW pump at CN16B tail
8. Supply and install 160Dia pipe from CN16B tail sump to Bene plant thickener

Project Objectives and success criteria: *(budget and timing KPI's)*

Reliable slurry pumping system.
Nil discharge to harbour.

Budget – within Budget constraints
Schedule – Project handover by <<date>>
Client acceptance

Scope Management: *(How will scope changes be managed)*

This document outlines the current scope approved by the client and key stakeholders. Any changes will be noted on a change management document and approved by the primary stakeholder. Significant scope changes will be referred back to Superintendent Projects and the Capital review committee.

Primary Stakeholders/roles: *(Who is most concerned with this project)*

Senior Maintenance Engineer FI – Steve Maley – Provide design input to PM.

Secondary Stakeholder/roles

Supt projects – Paul Young – Provide project monitoring and assistance to PM

HSE manager – Anton Fouche – Provide statutory guidelines

Dust Task force manager – Mike Van De Worp.

Key Assumptions: *(details of stakeholder input, evidence, include activities, deliverables not included in scope)*

The proposed design will result in our objective. No sump modification work to be undertaken.

CN17 belt wash will provide slurry ingress into CN16B head sump of approx 4l/s.

Sign off

Title	Name	Signature	Date
Project Manager:	Shudesh Kumar		
Supt FI Maint.:	Mat Currie		
Client – Snr Maint Eng:	Steve Maley		
Projects Supt	Paul Young		

CON003 - Consultants Brief Template

1.0 INTRODUCTION

BHPBIO have a need to upgrade five administration buildings at it Nelson Point Shiploading facility Port Hedland. Project feasibility and concept planning is required in order determine preliminary costings, construct ability, scope of works, scheduling and commercial strategies for these projects. The buildings under consideration are:

- i. Crushing administration building.
- ii. Port Hedland Area Administration Building (PHAMB).
- iii. Port Office.
- iv. Electrical Process Building upgrade.
- v. Engineering Building.

The primary objective of this brief is to outline the work required to undertake preliminary feasibility engineering and to produce a Project Justification document for each of the above mentioned building upgrade project.

2.0 SCOPE - GENERAL

The Consultant shall complete the following works in consultation and under the direction of the Company Representative:

With respect to the primary objective of the brief as stated in Section 1.0 perform the following:

Produce and lodge with BHPBIO Document control a Project Justification document.

Including:

- i. Preliminary Cost estimate.
- ii. Preliminary scope Statement.
- iii. Preliminary Business Benefits.
- iv. Line Area Review.
- v. Preliminary Schedule.
- vi. Preliminary Hazard Analysis/Risk Assessment.
- vii. Preliminary Sketches, Drawings.
- viii. Preliminary Financial Analysis.
- ix. Preliminary Designing for Safety Review.
- x. Obtain stakeholder Sign off.
- xi. Graphical Project Roadmap.

3.0 SCOPE - SPECIFIC

The consultants work shall include but is not limited to the following:

3.1 Initial Data Gathering.

The consultant shall visit site in order to gather key project data and meet with key stakeholders

3.2 Preparation of a “Project Justification” document.

The consultant shall assess the feasibility of undertaking the project in terms of the following parameters

- i. Problem Statement
- ii. Statement of Project Objective
- iii. Statement of Strategic Fit
- iv. Project Classification
- v. Key Project Stakeholders
- vi. Key Project Team Members
- vii. Project Deliverables/WBS
- viii. Business Benefits
- ix. Preliminary Project Cost Estimates
- x. Major Anticipated Risks
- xi. Key Measures of Project Success
- xii. Line Area Review
- xiii. Implementation Strategy
- xiv. Preliminary Schedule
- xv. Preliminary Hazard Analysis/Risk Assessment
- xvi. Project Scope Statement
- xvii. Preliminary Sketches, Drawings
- xviii. Financial Analysis
- xix. Preliminary Designing for Safety Review
- xx. Sign off
- xxi. Approval Conditions
- xxii. Checklists
- xxiii. Project Roadmap

4.0 CORRESPONDENCE

All correspondence shall be with the Superintendent Civil Projects using the following contact details:

5.0 MINIMUM PPE

The Consultant Shall Ensure That All Personnel That Attend Any Bhp Billiton Site Are Equipped With The Minimum Ppe Requirements, Which Includes Long Trousers And Long Sleeve Shirt, Hard Hat, Safety Glasses, Safety Boots And Safety Glasses.

6.0 LIST OF DELIVERABLES

Item	Description	Sched. Comp. By
1	Project Justification Statement.	
2	Provide Design dossier of any Calculations Design dossier to include: Cost Estimate Sheet Gant chart Relevant Sketches and Drawings Listing of relevant Australian Standards and design methods	

7.0 PLANT REFERENCE DRAWINGS

List all relevant existing drawings relevant to project.
Drawings

All drawings can be supplied in tiff format and in Microstation .dgn format if available from the BHPBIO Document control office Perth 08 9320 4204.

8.0 CONSTRAINTS/ASSUMPTIONS

Significant discussion planning and management required to arrange the temporary relocation of personnel when building works are being undertaken etc.

Previous building upgrade projects:
Phamb Building Upgrade (refer P. Young 0419 916 550)
Ore Car Repair shop upgrade (refer T. Comery 0417 584 109)

9.0 Method

Site visit to inspect works area.
Discuss requirements with stakeholders
Data collection
Production of deliverable

10.0 Output Checks

Line area signoff
Supt Civil signoff

11.0 Hold Points

Nil

12.0 Exclusions

Nil

13.0 REFERENCE DOCUMENTS

13.1 Australian Standards

The work/units shall comply with relevant Australian standards, and in particular with latest edition of the Australian Standards specifically mentioned in following company standards.

13.2 Company Standard Engineering Practices

13.3 Company Specifications

CON004 Project Justification Template

PROJECT MANAGEMENT FRAMEWORK

Concept / Project Initiation

Project Feasability/Justification

For

Project Name

Project:			
Project Manager:		Champion:	
Requested By:			
Client(s)		Date:	
<u>Consultants Brief No.</u>			

Executive Summary:

Problem:

-
-

Possible Solution(s):

-
-

Timing:

-

Cost:

-

Financial Analysis:

-

Significant Risk item/Score

-

Author:

-

Contents

Cover Page

Executive Summary

- 1.0 Problem Statement
- 2.0 Statement of Project Objective
- 3.0 Statement of Strategic Fit
- 4.0 Business Benefits
- 5.0 Project Classification
- 6.0 Key Project Stakeholders
- 7.0 Key Project Team Members
- 8.0 Work Breakdown Structure
- 9.0 Preliminary Project Cost Estimates
- 10.0 Major Anticipated Risks
- 11.0 Key Measures of Project Success
- 12.0 Options Considered
- 13.0 Line Area Review Implementation Strategy
- 14.0 Environmental/Aboriginal Review
- 15.0 Implementation Strategy
- 16.0 Preliminary Schedule
- 17.0 Preliminary Hazard Analysis/Risk Assessment
- 18.0 Project Scope Statement
- 19.0 Preliminary Sketches, Drawings
- 20.0 Financial Analysis
- 21.0 Preliminary Designing for Safety Review
- 21.0 Sign off
- 22.0 Approval Conditions
- 23.0 Checklists

Project Roadmap

1.0 Problem Statement (if appropriate): *(Briefly describe the problem or issue being solved. Eg discharge of slurry to harbour, Risk mitigation)*

2.0 Statement Of Project Objective : *(State what will be achieved and when eg Robust process that will prevent discharge to harbour)*

3.0 Statement Of Strategic Fit : *(Is the objective in line with BHPBIO charter, will we still require in 2-5 years time, possible management input, Risk management Record chart.)*

4.0 Business Benefits: *(What are the primary business reasons that drives this project Choose one or two categories and delete those that are not relevant)*

<u>Benefit Classification</u>	<u>Detail</u>	<u>Measure of Benefit</u>	<u>Confidence Rating H/M/L</u>
<u>Cost Reduction</u>			
<u>Plant Improvement</u>			
<u>Demolition / Site Improvement</u>			
<u>Environmental Requirement</u>			
<u>HSE*</u>			
<u>Growth/Revenue Generation</u>			
<u>Quality</u>			
<u>Research & Development</u>			
<u>Replacement</u>			
<u>General Capital <\$50,000</u>			
<u>Other (please nominate)</u>			
<u>Research & Development</u>			

*Projects being progressed on a safety risk reduction basis should note the reduction in EWRM risk score and note the cost justification score determined in section 19 of this document.

5.0 Identify alternatives: *(what are some of the proposed solutions that can achieve the desired project objectives)*

6.0 Key Project Stakeholders: *(Who is most concerned with this project)*

<u>Key Stakeholder</u>	<u>Project Phase</u>			
	<u>Concept/ Feasibility</u>	<u>Detail design and Planning</u>	<u>Commercials</u>	<u>Construction</u>

7.0 Key Project Team Members: *(Who will work on this project)*

<u>Key Team Member (Position)</u>	<u>Project Role</u>	<u>Department</u>	<u>Comments</u>

8.0 Work breakdown structure *(What makes up this project, electrical, mech, Civil, Procure, Design, Construct, Dot Point items, May be unknown at this stage):*

9.0 Project Cost estimates +/- 30% (indicate cost estimates amount):

Option 1

<u>Item Description</u>	<u>Estimate</u>	<u>Source</u>
<u>Feasibility</u>		
<u>Car Preparation</u>		
<u>Preliminary design</u>		
<u>Detail Design</u>		
<u>Procurement</u>		
<u>Construction</u>		
<u>Commisioning</u>		
<u>Project Management</u>		
<u>Contingincy 30%</u>		
<u>TOTAL</u>		

10.0 Major Anticipated Risks : (Risk of project failure.eg resources, operations interface):

<u>Risk Description</u>	<u>Mitigating Strategy</u>
<u>Performance</u>	
<u>Financial</u>	
<u>Schedule</u>	
<u>Scope</u>	
<u>Safety</u>	
<u>Undesirable side effects</u>	

11.0 Key Measures Of Project Success (Project KPIs):

<u>Item</u>	<u>Measure Of Success</u>	<u>KPI</u>
<u>Performance</u>		
<u>Financial</u>		
<u>Schedule</u>		
<u>Scope</u>		
<u>Safety</u>		
<u>Undesirable side effects</u>		

12.0 Line Area Review: *(Comments from line area/operations/Maintenance):*

13.0 Enviromental and Aboriginal Review *(Are they any potential environmental issues? eg dust generation disturbed fauna. Is there a need for Aboriginal affairs to be consulted?):*

14.0 Implementation Strategy *(include assumptions & constraints, indicate possible commercial strategies eg service contract/sole source, external consultant design, external project management):*

15.0 Prelim. Schedule *(Gant chart):*

CON006

17.0 Preliminary Sketches, drawings *(either list drawing numbers produced or attach tiff file)*

18.0 Financial Analysis: *(Preliminary NPV)*

Investment Costs

Operating Costs

Revenue

Avoided Costs

Other costs

NPV

19.0 Safety Analysis:

EWRM risk assessment

Risk assessment before – Severity S
Exposure E
Probability P
S x E x P =

Risk assessment after - Severity S
Exposure E
Probability P
S x E x P = 0 –

BHPBIO Assessment Procedure SPR-OHH-SAF-012 Hazard Identification and Risk Management

Risk assessment before – Consequence
Exposure E
Probability P
E x P = 2 – Risk Score =

Risk assessment after - Consequence
Exposure E
Probability P
E x P = 36 – Risk Score =

Cost Justification

Cost justification of implementing project BHPBIO Assessment Procedure SPR-OHH-SAF-012 Hazard Identification and Risk Management

Original risk Points –

Points risk reduction –

Implementation cost

Risk reduction score from matrix =

Justification -**19.0 Stage1 designing for Safety review (SEP58):** *(Conduct Stage 1 SEP58 review):***Prompts:**

Access, Dangerous Parts, Guards, Blockages, Isolation, Emergency Stops,
Information Required eg Training

Hazop Report

Members Present:

Drawings/Sketchs Reviewed:

Hazard/Risk Summary	Control Method	Who Responsible

CON005 – Project Cost Estimate

Engineering Services Project Management Manual



PROJECT ESTIMATING

Project Title:							Currency:				
Project Manager:				Project Sponsor:							
Activity/Task	Labour Costs			Material/Equipment Costs			Contract Costs	TOTAL BASE COST	Contingency		TOTAL COST
	Qty	Rate		Qty	Rate				%	\$	
A	B	C	D=B*C	E	F	G=E*F	X	H=D+G+X	I	J=H*I	K=H+J
Sunk costs			0			0		0		0	0
Engineering Investigation Concept (to date)BHPBIO	5,000	136	680,000			0		680,000	5%	34,000	714,000
Concept/Approvals											
<i>Engineering Investigation Feasability BHPBIO</i>			0			0	500,000	500,000	10%	50,000	550,000
<i>Engineering consultant</i>			0			0		0		0	0
<i>Drafting</i>			0			0		0		0	0
<i>Approval (BHPBIO/Consultant)</i>			0			0		0		0	0
			0			0		0		0	0
Detail Design											
<i>Engineering consultant</i>			0			0		0		0	0
<i>Drafting</i>			0			0		0		0	0
			0			0		0		0	0
<i>Approval to construct (BHPBIO/Consultant)</i>			0			0		0		0	0

			0		0		0		0	0
<i>Construction</i>			0		0		0		0	0
			0		0		0		0	0
			0		0		0		0	0
			0		0		0		0	0
			0		0		0		0	0
			0		0		0		0	0
<i>Other</i>			0		0		0		0	0
			0		0		0		0	0
			0		0		0		0	0
SUBTOTAL (Base Estimate)			680,000		0	500,000	1,180,000			
Contingency								7.1%	84,000	
PROJECT TOTALS			680,000		0	500,000				1,264,000

CON006 Project schedule Template

ID	Task Name	Duration	2003												2004							
			Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov		
0	BHPBIO project	#####	[Gantt bar spanning from Oct 2003 to Nov 2004]																			
1	1 Project Concept	21 days	[Gantt bar from Oct 2003 to Nov 2003]																			
3	2 Feasibility	26 days	[Gantt bar from Nov 2003 to Jan 2004]																			
8	3 Detail design and Planning	54 days	[Gantt bar from Dec 2003 to Feb 2004]																			
14	4 Implementation	40 days	[Gantt bar from Jan 2004 to Mar 2004]																			
17	5 Construction	26 days	[Gantt bar from Feb 2004 to Apr 2004]																			
20	6 Handover/Commision	5 days	[Gantt bar from Mar 2004 to Apr 2004]																			
21	6.1 Handover/Commision	5 days	[Gantt bar from Mar 2004 to Apr 2004]																			
22	7 Shutdown Program	1 day	[Gantt bar from Apr 2004 to Apr 2004]																			
23	7.1 Detail shutdown planning	1 day	[Gantt bar from Apr 2004 to Apr 2004]																			
24	7.1.1 Shutdown plan here	1 day	[Gantt bar from Apr 2004 to Apr 2004]																			
25	8 Mounthly Progress	196.06 days	[Vertical tick marks every month from Jun 2003 to Nov 2004]																			
33	8.8 Monthly update	0.5 hrs	[Vertical tick marks every month from Jun 2003 to Nov 2004]																			

CON007 - Feasibility Project Execution Plan

FEASABILITY PROJECT EXECUTION PLAN

(1 Pager)

Project:			
Project Manager:		Sponsor:	

This document is a preliminary view of how this project would progress if approved to continue.

Item	Action	Who
1.	Approval to proceed/Agree with Scope Statement Line area sign off.	Stakeholders/Project Manager
2.	Concept work Project Justification – Ballpark cost & schedule, benefit analysis, Aboriginal & Environmental review. Prelim hazard analysis, Design for Safety review Line area sign off. Engage consultant to prepare Project Justification	Project Manager Ops funded
3.	Feasibility Preliminary Project plan – +/-30% cost & schedule, commercial strategy NPV, IRR analysis, Project risk analysis, Organisation structure. Design for Safety review. Line area sign off.	Project Manager Ops Funded Journal out if proceeds to Capital project
4.	Apply for Design funds Detail Design & Planning Design specs, Detail design, budget quotes, +/-10% Detailed cost & schedule, Detailed hazard analysis and Design for Safety review, cash flow forecast, spares list, maintenance requirement review. Line area sign off.	Project Manager
5.	Apply for capital construction funds Implementation Tendering, 3 prices Misc works contract – Award construction/supply package	Project Manager
6.	Construction	Project Manager
7.	Commission and handover Line area sign off.	Project Manager
8.	Close out review	Project Manager

Sign off

Project Client/Sponsor.....
Position – Name

Project Manager.....
Position – Name

CON010 – Peer Review Template

PROJECT MANAGEMENT FRAMEWORK

Project Peer Review Guide, Template & Checklist

CONCEPT

REVIEW ITEM	LOOK FOR	Rating						COMMENTS
		NA	None	Some	Fair	Good	Best Practice	
<u>Understanding Business Drivers</u>	<ul style="list-style-type: none"> • The reason for the project is known and understood. • The key business drivers are known and documented. • The link between the project and the business strategy is known and understood. 							
Review Alternatives to Project Expenditure	<ul style="list-style-type: none"> • Alternatives to project expenditure have been considered and reviewed. 							
Six Sigma Plus	<ul style="list-style-type: none"> • For problem resolution - Six Sigma Plus methodology has been followed. 							

Source of Project Funding Capital Program, budgeted/unbudgeted	<ul style="list-style-type: none"> • How is the Project being financed? • Do finance costs add to project costs? • What are the finance costs? 							
Level Of Initial Project Planning	<ul style="list-style-type: none"> • A preliminary level of planning has been undertaken with regard to cost and schedule. 							
Project Stakeholders Identified	<ul style="list-style-type: none"> • Key project stakeholders are identified and their interest in the project is known. 							
Preliminary Risk Identification	<ul style="list-style-type: none"> • Key project risks are identified and documented. 							

Appendix D

Definition and Planning (Tollgate 2) Templates

DEF001 – Cost Estimate

Sane as CON005

DEF002 – Business Case Document

PROJECT MANAGEMENT FRAMEWORK

Project Feasibility

Project Business Case

For

<Project Title>

Project:			
Project Manager:		Champion:	
Requested By:			
Client(s)		Date:	
<u>Consultants Brief</u> <u>No.</u>			

Executive Summary:

Problem:

-
-

Possible Solution(s):

-

Timing:

-

Cost:

-

Financial Analysis:

-

Significant Risk item/Score

-

KPI's

-

Author:

-

INTRODUCTION / BACKGROUND

Problem Statement *(Briefly describe the need)*

A description of the relevant project circumstances and environment,
 An assessment of how the business needs are currently being met or not met.
 An analysis of the gap between the current situation and the project objectives.

Project Initiation *(Briefly describe the reasons for establishing the project and how it was initiated).*

Project Objective *(State what will be achieved and when. Does it align with the business strategic goal)*

Statement Of Strategic Fit : *(Is the objective in line with BHPBIO charter, will we still require in 2-5 years time, possible management input, Risk management Record chart. Is it a budgeted project? If not what will be dropped from the capital program)*

Project Business benefits *(Where possible outcomes should be stated in measurable terms (eg increased revenue, avoided cost, improved service levels, etc).*

Delete those rows that are not applicable

<u>Benefit Classification</u>	<u>Detail</u>	<u>Confidence Rating H/M/L</u>
<u>Cost Reduction</u>		
<u>Plant Improvement</u>		
<u>Demolition / Site Improvement</u>		
<u>Environmental Requirement</u>		
<u>HSE</u>		

Growth/Revenue Generation		
Quality		
Replacement		
Research & Development		

Scope Of Work *(Identify the project work that falls within the scope of the project, that which is outside the scope, and any work that requires further consideration)*

Overview of deliverables

Work Breakdown Structure	Part Of Project “Inside Scope”	Not Part Of Project “Outside Scope”	Uncertain or Unresolved
010			
020			
030			
040			
050			
060			
070			
080			
090			

Assumptions and Constraints *(Examples of assumptions and constraints include deadlines, financial and budgetary, resource availability, environmental, technology, security, etc.)*

Regulatory Requirements *(Identify any government policies, legislation or rules and document their impact on the project.)*

ANALYSIS OF OPTIONS

Comparison Of Options

- Option 1* *Do nothing*
Option 2 *An option that would achieve the same result*
Option 3 *The preferred option*

The benefits, dis-benefits, direct and recurrent costs, and the major risks and the cost of risk minimisation should be identified for each option. This should be a summary and may best be displayed in a table. If a detailed analysis is necessary it should be included as an attachment. For some initiatives the benefits/dis-benefits are not directly quantifiable or financial and in these cases a simple statement of the benefit/dis-benefit should be made.

Criteria	Option 1 <i>Do nothing</i>	Option 2 <i>An option that would achieve the same result</i>	Option 3 <i>The preferred option</i>
Advantages Stakeholder A Stakeholder B			
Disadvantages Stakeholder A Stakeholder B			
Costs Direct Indirect Recurrent			
Risks Initial Minimisation / Mitigation Costs Resulting Risk			
Comments			

Recommended Option

The recommended option from the previous analysis should be identified here with a summary of its major advantages.

FINANCIAL SUMMARY

Summary of total investment cost, operating costs, revenue, avoided costs, investment returns, future options and research and development expenditure.

Investment Costs *(Detailed cost estimate)*

Operating Costs *(These costs are all costs required to operate the facilities, equipment, systems, processes, etc, delivered by the project. They will typically include operating, maintenance and support costs).*

Revenue *(This is incoming cash resulting from the operation of the project. Not all projects will increase revenue).*

Avoided Costs *(These are costs that would be avoided by implementation of the project. Be careful that the project does not just “displace” these costs (ie they will occur somewhere else).*

Other Financial Factors *(Length of investment life, etc as required by Capital Analyst)*

Investment Returns *(Consult with Capital Financial analyst and attach output sheet)*

NPV

IRR

SAFETY SUMMARY

Summary of total safety improvement gained from project, before and after risk score, economic justification for dollars expended against risk reduction obtained

Risk Reduction *(Detailed before and after risk analysis) Refer:*
[EWRM STANDARD NO. 1 – RISK RANKING AND MEASUREMENT.](#)
[EWRM STANDARD NO. 1.2 –HOW TO USE THE RISK RANKING SYSTEM](#)
[EWRM STANDARD NO. 2 – RISK ASSESMENT METHODS \(Simple Method\)](#)
Site procedure - [SPR-OHH-SAF-012](#)

EWRM

Before: Risk Score(EWRM)

After: Risk Score(EWRM)

[SPR-OHH-SAF-012](#)

Before: Risk Score(EWRM)

After: Risk Score(EWRM)

Economics of Risk Reduction *(Detailed before and after risk analysis) Refer:*
BHPBIO site procedure [SPR-OHH-SAF-012](#) Has ID and Risk Score.

Original risk Points –
Points risk reduction –
Implementation cost
Risk reduction score from matrix =

Justification:

PROJECT STRATEGIES

Expandability *(State where this project may provide future opportunities to the organisation which are not considered in this business case, Can the installation be expanded in the future).*

Research and Development (R&D) *(Nominate any costs that can be treated as R&D expenditure).*

Implementation Strategy

Refer Preliminary project execution Plan

Resources

List the resources and when they are required.

Major Anticipated Risks : *(Risk of project failure, eg resources, operations interface):*

Risk Description	Impacts On	Mitigating Strategy
<u>Financial</u>		
<u>Performance</u>		
<u>Safety</u>		
<u>Construction</u>		

Miscellaneous Items (if required)

ATTACHMENTS

The following are attached in support of this project business case:

Delete those as required.

Project Scope Statement
 Project Justification
 Preliminary Project Execution Plan
 Preliminary Project Schedule
 Preliminary Project Estimate
 Communications Plan

DEF003 – Project Execution Plan

PROJECT MANAGEMENT FRAMEWORK

Feasibility

Project Execution Plan

For

Project Name

Project:			
Project Manager:		Champion:	
Requested By:			
Client(s)		Date:	
<u>Consultants Brief No.</u>			

Sign off : Key Project Stakeholders:

Title	Name	Signature	Date
Project Manager:			
Dicipline Superintendent			
Client –			

If required

<u>Environmental</u>			
<u>Aboriginal</u>			

Approval Conditions:

No.	Imposed By	Approval Condition	Comment

Contents

Cover Page

Executive Summary

- 1.0 Problem Statement
- 2.0 Statement of Project Objective
- 3.0 Statement of Strategic Fit
- 4.0 Project Classification
- 5.0 Key Project Stakeholders
- 6.0 Key Project Team Members
- 7.0 Work Breakdown Structure
- 8.0 Business Benefits
- 9.0 Preliminary Project Cost Estimates
- 10.0 Major Anticipated Risks
- 11.0 Key Measures of Project Success
- 12.0 Options Considered
- 13.0 Line Area Review Implementation Strategy
- 14.0 Environmental/Aboriginal Review
- 16.0 Implementation Strategy
- 16.0 Preliminary Schedule
- 17.0 Preliminary Hazard Analysis/Risk Assessment
- 18.0 Project Scope Statement
- 19.0 Preliminary Sketches, Drawings
- 20.0 Financial Analysis
- 21.0 Preliminary Designing for Safety Review
- 21.0 Sign off
- 22.0 Approval Conditions
- 23.0 Checklists

1.0 PROJECT OVERVIEW

1.1 Introduction *(Briefly describe the problem or issue being solved. Eg discharge of slurry to harbour, Risk mitigation Provide any historical information and context. Describe how the project came to being – outline the problem, reference past studies, investigations and other relevant information)*

ro

1.2 Project objectives and Deliverables *(State what will be achieved and when, Dot point objectives and deliverables eg Robust process that will prevent discharge to harbour)*

1.3 Work Completed to date:

Project justification Doc No. PRJS <XXX/XXXX>
Business Case Doc No <XXX/XXXX>

1.4 Project Scope of Work/Exclusions : *(State what will be constructed and what will not be constructed)*

Work Breakdown Structure (WBS)	Part Of Project “Inside Scope”	Not Part Of Project “Outside Scope”	Uncertain or Unresolved
010			
020			
030			
040			
050			
060			
070			
080			
090			

1.4.1 WBS 010 *(Who needs to do what)*

1.4.2 WBS 010 *(Who needs to do what)*

1.4.3 WBS 020 *(Who needs to do what)*

1.4.4 WBS 030 *(Who needs to do what)*

1.4.5 WBS 040 *(Who needs to do what)*

1.4.6 WBS 050 *(Who needs to do what)*

1.4.7 WBS 060 *(Who needs to do what)*

1.4.8 WBS 070 *(Who needs to do what)***1.4.9 WBS 080** *(Who needs to do what)*

Sample actions under relevant WBS

- **Mechanical design** *(Who shall do what)*
 - Prepare and issue consultants brief - **Name**
 - Review design - **Name**
 - Award design - **Name**
 - Review Design - **Name**
 - Designing for Safety Review SEP58 - **Name**
 - Design Sign off - **Name**

- **Electrical design** *(Who shall do what)*
 - Prepare and issue consultants brief - **Name**
 - Review design - **Name**
 - Award design - **Name**
 - Review Design - **Name**
 - Designing for Safety Review SEP58 - **Name**
 - Design Sign off - **Name**

- **Installation** *(What will be installed, potential installers)*
 - Prepare scope of work, contract documentation - **Name**
 - Tender analysis - **Name**
 - Award - **Name**
 - Contractor to fabricate/install - **Name**
 - Discuss shut/nonshut work

- **As built drawings**
 - Drafting work - **Name**

- **GSAPP Bill of materials/Equipment input**
 - Drafting work - **Name**

- **Handover and Close Out report**
 - Describe who it will be handed over to, what will be complete prior to handover - **Name**
 - Benefits Capture

1.5 Project Assumptions *(State any assumptions)*

1.6 Project Dependencies *(Describe any relationship of this project to other projects or workgroups)*

1.7 Impacts on Infrastructure *(Maintenance or ops. Will these depts have tasks to do after install? Eg lube crew, weekly maint, pit cleaning)*

1.8 Major Anticipated Risks/ Risk Management Plan : *(Risk of project failure, eg resources, operations interface):*

Risk Description	Impacts On
<u>Financial</u>	
<u>Performance</u>	
<u>Safety</u>	
<u>Construction</u>	
<u>Dependencies</u>	
<u>Other</u>	

Risks to Pursue:

Risk Name	Symptom	Risk reduction strategy	Contingency

1.9 Key Measures Of Project Success *(Project KPIs):*

<u>Item</u>	<u>Measure Of Success</u>	<u>KPI</u>
Safety		
Benefits		
Cost		
Schedule		
Acceptance by Client		

2.0 Project Team and Roles

2.1 Org chart *(Produce in Visio)*

2.2 Key positions, roles and authority

<u>Key Team Member (Position)</u>	<u>Project Role</u>	<u>Department</u>	<u>Authority</u>

3.0 Project Implementation

3.1 Safety *(Detail the level of Safety control and the approach to be taken, all projects should have a Safety Management Plan, A Detailed Designing for Safety Review and detailed Hazop)*

3.1.1 Safety Management Plan

Refer to Specific Safety management Plan.

3.2.2 Stage 2 Designing for Safety Review

A designing for Safety Review SEP58 shall be completed and the outcomes surmised and detailed below.

Prompts:

Access, Dangerous Parts, Guards, Blockages, Isolation, Emergency Stops, Information Required eg Training

Hazop Report

Members Present:

Drawings/Sketchs Reviewed:

Hazard/Risk Summary	Control Method	Who Responsible

5. EWRM STANDARD NO. 1.2 –HOW TO USE THE RISK RANKING SYSTEM
6. EWRM STANDARD NO. 2 – RISK ASSESMENT METHODS (Simple Method)
Available from the BHPBilliton

3.3 Implementation strategy *(Detail the work to be done, relate back to WBS numbers)*

- Project Scope signed off.
- Project Justification accepted.
- Project execution Plan accepted.
- Capital allocation request for design funds approved.
- Complete general arrangement drawings.
- GA drawings reviewed by Prim. Stakeholders and signed off.
- GA drawings reviewed by line areas and signed off.
- Complete Detailed Design.
- Detail design Engineering sign off.
- Capital allocation request for Construction funds approved.
- Procure major components.
- Put together a tender package
- Review the tender and award the contract
- Install: SHUT & NON-SHUT works
- Complete As built drawings
- Commission and handover to maintenance/operations

Project Priorities *(Explain why important)*

Budget

Schedule

Quality

- a. **Commercial strategy** *(Detail how work packages will be implemented, who will project manage?
Sole source, prospective tenderers for work packages, fixed lump sum, Time and materials).*

3.5 Project Schedule *(Gantt Chart)*

3.6 Project Budget +/- 10% *(indicate cost estimates amount):*

Proposed Budget – To be confirmed on success of Capital allocation request

1.4.1 WBS Total Project Budget

- 1.4.2 WBS 010**
- 1.4.3 WBS 020**
- 1.4.4 WBS 030**
- 1.4.5 WBS 040**
- 1.4.6 WBS 050**
- 1.4.7 WBS 060**
- 1.4.8 WBS 070**
- 1.4.9 WBS 080**

For Detailed Cost Estimate Refer Appendix 1

4.0 Project Control

4.1 Communications and Project Reporting Plan.

Project reporting of progress and financials and scheduling will take as per the attached table.

Communications and Reporting Plan

<u>Who</u>	<u>What Information</u>	<u>When</u>	<u>How</u>

4.2 Change Management *(How will changes be monitored/managed)*

Any changes throughout the duration of the project will be managed by a revision of the scope statement and resigned of by the client. Changes can be:

- Scope of work.
- Scheduling
- Budget
- Minor changes.

A register of changes will be kept on the project file along with superseded scope statements and the current scope statement. Significant changes will require capital committee approval.

[Change of Scope Template](#)

[Change of Scope Register](#)

4.3 Project Control *(How will cost be controlled on project)*

Budget
Forecast
Cashflow
Schedule
Scope

4.4 Project Meetings *(List required meetings)*

5.0 Project Quality and Auditing

5.1 Project Quality *(Detail how project quality will be managed)*

5.2 Project Auditing *(What audits will be done and by whom eg. Safety, financial, scope)*

6.0 Operations/Maintenance Handover

6.1 Handover *(Who will sign off on Handover form)*

Operations

Maintenance

6.2 Training requirements *(What training will be required prior to handover)*

6.3 Gsapp functional location additions/revisions.

6.4 Manuals *(What manuals will be required and where will they be lodged)*

7.0 Project Close Out

7.1 Project Close out *(Will a project close out be done?, by whom)*

DEF004 – Project Schedule

Similar to CON006

DEF005 – Project Environmental, Land Tenure and Aboriginal Review

SITE.....No.....

Example site Newman No. N01

DATE:

PROJECT SCHEDULE:

PROJECT TITLE:-

DESIGNATED PROJECT OWNER:

SIGNATURE:

APPROVALS REQUIRED	NO	YES	IF YES, DESCRIPTION
Is it within a current Mining Tenement or Lease? <i>(A plan must be attached showing lease boundaries etc)</i>	N/A		
Is it an approved purpose for the use of this land?			
Are any State Government or other external approvals required (e.g. Minister or DoIR etc)?			

PROJECT ACTIVITIES:

Will any of the following occur during the project?

PROJECT ACTIVITY	NO	YES	IF YES, DESCRIBE THE ACTIVITY
LAND DISTURBANCE *			
VEGETATION CLEARING BORROWING OF MATERIAL			
NEW PROCESS OR ASPECT*			
DUST GENERATION			
DISCHARGES TO LAND*			
DISCHARGES TO WATER			
OTHER *			

* IF YES to Land Disturbance and where Other includes Land Disturbance Activities the land must be assessed in regards to Aboriginal Heritage and Legal land access issues.

Note: Dust generation may include earthworks, trucking of materials, sandblasting; discharges to land and water may include pumping of sumps, disposal of solid or liquid wastes etc.

IF YES Describe the Management Proposed for the Activity or attach summary on more complex projects:

PROJECT ACTIVITY	PROPOSED MANAGEMENT

PROJECT LOCATION:

Provide coordinates, sketch, or attach map/drawing giving the details of the project location and area of impact. In addition, a map must be provided which clearly shows the proximity of the project to lease area(s), lease numbers and on significant projects the total area to be disturbed.

Note: indicate approximate scale and orientation of any sketch map/plan,

WASTE MANAGEMENT:

Are any of the following wastes being generated by the Project?

WASTE	NO	YES	IF YES, PROPOSED DISPOSAL METHOD
METALS			
PALLETS/WOOD			
CABLES			
PIPES			
BELTS			
DRUMS			
CONCRETE			
OILS/GREASE			
CHEMICALS			
BATTERIES			
OTHER			

ENVIRONMENTAL OFFICER

Comments:

Signature: _____

Date:

ABORIGINAL LIAISON AND TRAINING OFFICER

Comments:

Signature: _____

Date:

LAND TENURE AUTHORITY (if required)

Comments:

Signature: _____

Date:

DEF006 – Definition and Planning Peer Review

Same as CON010

DEF008 – PowerPoint Presentation

Unable to attach power point presentation

DEF009 – Design for Safety Review

Same as CON010

Appendix E

Detail Design and Planning (Tollgate 3) Templates

PLA001 – Design Consultants Brief

Consultants Brief		<u>PAGES 1 TO ATTACHED</u>																																					
NUMBER	CONB F092/00??	JOB No 1479																																					
DESCRIPTION	PORT INDUSTRIAL FACILITIES WORKSHOP – WESTERN STOCKYARD DETAIL DESIGN AND DOCUMENTATION																																						
OFFICE OF ORIGIN	ENGINEERING SERVICES - CIVIL					G.A.																																	
WRITTEN BY	PAUL YOUNG	DATE 7.7.04				B.O.M.																																	
REVIEWED BY		DATE				SCOPE																																	
TITLE OF REVIEWER																																							
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4" style="text-align: center;">STATUS APPROVAL BY BHPBIO RESPONSIBLE MANAGER/ENGINEER</th> </tr> <tr> <td style="width: 45%;"></td> <th style="width: 20%;">SIGNED</th> <th style="width: 20%;">DATE</th> <th style="width: 15%;">REV</th> </tr> <tr> <td>PRELIMINARY ONLY</td> <td style="text-align: center;">.....</td> <td style="text-align: center;">.....</td> <td style="text-align: center;">.....</td> </tr> <tr> <td>ACCEPTED</td> <td style="text-align: center;">.....</td> <td style="text-align: center;">.....</td> <td style="text-align: center;">.....</td> </tr> <tr> <td>ACCEPTED EXCEPT AS NOTED</td> <td style="text-align: center;">.....</td> <td style="text-align: center;">.....</td> <td style="text-align: center;">.....</td> </tr> <tr> <td>REVISE AND RESUBMIT</td> <td style="text-align: center;">.....</td> <td style="text-align: center;">.....</td> <td style="text-align: center;">.....</td> </tr> <tr> <th colspan="4" style="text-align: center;">APPROVAL BY BHPBIO RESPONSIBLE MANAGER</th> </tr> <tr> <td colspan="2" style="text-align: center;">.....</td> <td colspan="2" style="text-align: center;">DATE</td> </tr> </table>								STATUS APPROVAL BY BHPBIO RESPONSIBLE MANAGER/ENGINEER					SIGNED	DATE	REV	PRELIMINARY ONLY	ACCEPTED	ACCEPTED EXCEPT AS NOTED	REVISE AND RESUBMIT	APPROVAL BY BHPBIO RESPONSIBLE MANAGER					DATE	
STATUS APPROVAL BY BHPBIO RESPONSIBLE MANAGER/ENGINEER																																							
	SIGNED	DATE	REV																																				
PRELIMINARY ONLY																																				
ACCEPTED																																				
ACCEPTED EXCEPT AS NOTED																																				
REVISE AND RESUBMIT																																				
APPROVAL BY BHPBIO RESPONSIBLE MANAGER																																							
.....		DATE																																					
No.	Date	Revisions	By	Ckd	Revd	BHPBIO																																	
0	7.7.04	ISSUED TO CONSULTANT	PY																																				

1.0 INTRODUCTION

BHPBIO have approval to construct a workshop for the Western Yard workgroup. The workshop has been designed twice previously but due to uncertainty regarding BHPBIO's future growth the locations have been lost.

A third and final location has been selected and is shown on sketch 1 attached.

The primary objective of this brief is to outline the work required to provide design documentation in order that the workshop be built.

2.0 SCOPE - GENERAL

The Consultant shall complete the following works in consultation and under the direction of the Company Representative:

With respect to the primary objective of the brief as stated in Section 1.0 perform the following:

Produce and lodge with BHPBIO Document control Design Documentation for 25m x 15m workshop and associated infrastructure. All documentation shall be signed Issued for Construction by the BHPBIO representative.

Undertake and document a Designing for Safety Review for approval by the BHPBIO representative in accordance with SEP58.

3.0 SCOPE - SPECIFIC

The consultants work shall include but is not limited to the following:

3.3 Initial Data Gathering.

The consultant shall visit site in order to inspect the proposed location of the workshop.

3.4 Preparation of design documentation.

The consultant shall prepare design drawings and specifications in order that an external fabricator may fabricate and construct the workshop. In particular addressing the following:

- Structural
- Electrical
- Water Supply
- Sewerage
- Civil
- Stormwater Runoff

4.0 CORRESPONDENCE

All correspondence shall be with the Superintendent Civil Projects using the following contact details:

5.0 MINIMUM PPE

The Consultant Shall Ensure That All Personnel That Attend Any Bhp Billiton Site Are Equipped With The Minimum Ppe Requirements, Which Includes Long Trousers And Long Sleeve Shirt, Hard Hat, Safety Glasses, Safety Boots And Safety Glasses.

6.0 LIST OF DELIVERABLES

Item	Description	Sched. Comp. By
1	Schedule of Design process.	
1	Design drawings and specifications	
2	Provide Design dossier of any Calculations Design dossier to include: Listing of relevant Australian Standards and design methods	

7.0 PLANT REFERENCE DRAWINGS

List all relevant existing drawings relevant to project.
Drawings

Number	Description
Crushing Building	
501-C-0125, 0136	Composite Services Drawings
Drawings produced as REV 0	Initial Workshop Design Drawings
F083-E-8026, 8027	West Yard Substation

All drawings can be supplied in tiff format and in Microstation .dgn format if available form the BHPBIO Document control office Perth 08 9320 4204.

8.0 CONSTRAINTS/ASSUMPTIONS

That approval to install a septic tank and leach drains will be provided

9.0 Method

Produce documentation in the following stages
15% complete for prelim review
85% complete for final review

100% for sign off

Structural – Design to be as per issue 0 previously completed. The requirement to allow for future expansion of the workshop is no longer required.

Electrical – Design to be as per current issue except that telephone, data transmission and power supply shall be taken from the West Yard Substation

Water Supply– Design to be as per current issue. Note that:

- Exist DSW shall require relocation from underneath the exist workshop.
- Firewater shall be provided from exist Dust Suppression Water.
- Potable water shall be taken from the line shown on 541-C-0125, 0136. Note that potable water pressure in this line is inadequate and will require mechanical pressurization to achieve suitable pressure

Sewerage

- Design and select an off the shelf ablution block for male and female use. Septic and Leach to accommodate 15 people.

Civil –

- All Stormwater runoff to be directed to the large open drain to the east of the proposed location.
- Finished floor level of workshop to be 6.55.
- Provide a bitumen-sealed surface for a distance of 45m from the north edge of the workshop. Refer attached sketch. Road base to be class B roadbase.

10.0 Output Checks

Line area signoff
Supt Civil signoff
Consultant peer review
Stage 2 designing for safety Review

11.0 Hold Points

Nil

12.0 Exclusions

Nil

12.1 REFERENCE DOCUMENTS

12.1 Australian Standards

The work shall comply with relevant Australian standards, and in particular with latest edition of the Australian Standards specifically mentioned in following company standards. The consultant shall determine and advise the company representative of relevant standards used.

12.2 Company Standard Engineering Practices

13.0 Other

Mines Safety and Inspection Regulations 1995
Building Code of Australia.

PLA002 Design Review Template

Unable to input as file is a PDF file.

PLA003 – Designing for Safety Review

Same as CON008

PLA004 – Final Project Execution Plan

Same as DEF003

PLA005 – Detail design Peer Review

Same as CON010

PLA006 – Budget Cost Scope of Work

<p><u>PRELIMINARY SCOPE OF WORK FOR BUDGET ESTIMATES</u></p>	<p>PAGES 1 TO # ATTACHED</p>
<p>SOW NUMBER</p>	<p>OMNICOM No</p>
<p>DESCRIPTION</p>	
<p>OFFICE OF ORIGIN WRITTEN BY REVIEWED BY TITLE OF REVIEWER</p>	<p>DATE. DATE</p>

<p>STATUS APPROVAL BY BHPBIO RESPONSIBLE MANAGER/ENGINEER</p>			
	<p>SIGNED</p>	<p>DATE</p>	<p>REV</p>
<p>PRELIMINARY ONLY</p>	<p>.....</p>	<p>.....</p>	<p>.....</p>
<p>ACCEPTED</p>	<p>.....</p>	<p>.....</p>	<p>.....</p>
<p>ACCEPTED EXCEPT AS NOTED</p>	<p>.....</p>	<p>.....</p>	<p>.....</p>
<p>REVISE AND RESUBMIT</p>	<p>.....</p>	<p>.....</p>	<p>.....</p>
<p>APPROVAL BY BHPBIO RESPONSIBLE MANAGER</p>			
<p>.....</p>			<p>DATE.....</p>
<p>APPROVAL BY BHPBIO HSE MANAGER</p>			
<p>.....</p>			<p>DATE</p>

No.	Date	Revisions	By	Ckd	Revd	BHPBIO

1.0 LOCATION

The work is located at the Company's _____ Western Australia.

2.0 GENERAL

- 2.1 Safety Management Plan will be required Yes or No
 Environmental Management Plan will be required Yes or No
 Works programme Plan will be Plan required Yes or No
 Quality assurance Plan will be required Yes or No
 Site Inductions required
 Main gate
 Site specific

2.2 Cranage

Contractor to supply cranage

3.0 PRELIMINARY SAFETY RISK ASSESMENT

Following is a preliminary assessment of the risks involved in undertaking this project. Allow for these issues in budget costing.

Risk	High/Low	Possible Mitigating strategy

3.0 WORK REQUIRED

3.2 Structural

3.3 Mechanical

3.4 Electrical

3.5 Piping And Services

3.6 Terminal Points

3.7 Testing and Commissioning

3.8 Work Excluded

4.0 CONTRACT DRAWINGS

Drawing/Sketch No.	Rev.	Title
--------------------	------	-------

5.0 MATERIAL SUPPLY

5.1 Company Supply

5.2 Contractor to Supply

6.0 REFERENCE DOCUMENTS

Where the Engineering Standard Specification refers to an Australian Standard which has been superseded the Contractor shall read into the Specification the most current Australian Standard

PLA007 – Construction Funds Capital Allocation Request

Same as DEF007

PLA008 – Power point Presentation

Same as DEF008

PLA009 – Authority to Proceed to Market

**Authority to proceed to Market
(Short Form)
\$50,000 - \$150,000
(Procurement Plan)**

Services / Commodity / Capital

This document created by:			
Omnicom number			
Contract Name			
Work Location		Select: Local/National/Global	Cost Centre or WBS #:
Proposed Duration		Source Determination:	Tendered or Sole Sourced
Est. Annual Value:	A\$	Est. Total Commitment:	A\$
Department Representative	<i>All needs have been identified and addressed by the Scope of Work and the Scope of Work is operable by the responsible Asset department or function. Funds are available and all ongoing financial management requirements have been addressed. HSEC requirements have been satisfied and all ongoing HSEC requirements have been addressed. Attached is an "Approved for Tender" Scope of Work</i>		
Recommended by:	Position	Name	Signature and Date
Supply Representative	<i>All procurement strategies have been identified and sourcing arrangements meet the requirements of BHP Billiton Iron Ore and Boodarie Iron.</i>		
	Position	Name	Signature and Date
Approvals	<i>Approvals per F&A level (refer CHT-SUP-000-013)</i>		
	Position	Name	Signature and Date
Department Manager			

The following is an outline of the issues to be considered when completing this document. The issues raised are indicative only and each arrangement should be considered unique and treated accordingly.

Delete or mark as N/A as required.

Preliminary Information		
Health, Safety, Environmental and Community		
Quality Assurance		
Research and Analysis		
Benefits		
Risk Management		
Source Determination	<i>What factors determine the source of supply? Will these items be sought competitively or sole sourced? For 'Sole Source' provide Justification, Benefits, Risks and Cost (refer SUP-POL-000-021 Source Determination)</i>	
Procurement Timetable	Activity	Proposed Date
	Procurement Plan Approved	dd/mm/yy
	Tender doc Developed & Approved	dd/mm/yy
	Tender Document Issued	dd/mm/yy
	Tender Closed	dd/mm/yy
	Tender Evaluations/Recommendations Complete	dd/mm/yy
	Authority to proceed to Contract	dd/mm/yy
	Contract award	dd/mm/yy
	Contract Commencement	dd/mm/yy
	Contract Review Schedule	daily/weekly/monthly/yearly
Contract Completion	dd/mm/yy	
Other issues		

TENDERERS minimum of three	
Company Name: _____	Company Name: _____
Contact: _____	Contact: _____
Title: _____	Title: _____
Postal Address: _____	Postal Address: _____
_____	_____
Street Address: _____	Street Address: _____
_____	_____
Phone: _____	Phone: _____
Fax: _____	Fax: _____
Mobile: _____	Mobile: _____
Company Name: _____	Company Name: _____
Contact: _____	Contact: _____
Title: _____	Title: _____
Postal Address: _____	Postal Address: _____
_____	_____
Street Address: _____	Street Address: _____
_____	_____
Phone: _____	Phone: _____
Fax: _____	Fax: _____
Mobile: _____	Mobile: _____
IMPORTANT NOTE	
ALL Correspondence and Documentation (Original Copies) Relating To This Tender Shall Be Forwarded To Supply Services For Filing In The Tender File For This Project.	

PLA010 – Preliminary Shutdown Plan

Preliminary Shutdown Plan For XXXXXXXXX

Department requesting	Engineering Services – Mladen Glavovic x6430 0400 241 603
Area:	Crushing – tcb1
Item description	Car dumper no. 1
Shutdown duration:	72 hours Round the clock
Reason for shutdown:	
Contractor:	Excell resources – scaffold Hedland sheet metal 4 personnel during day shift 5 personnel during night shift
Equipment:	Small trucks/vehicles in north parking area.
Line area rep:	Kristian ravn
Equipment/options not available to operations:	<ul style="list-style-type: none"> • Car Dumping at No. 1 dumper. • P1 Belt • Feeders 1-6
Preferred timing:	Approx month of shutdown required.
Duration	Approx length of shutdown required.
Safety management	What approach to safety will be taken. SMP
General comments:	Supervision provided by Mladen Glavovic (Graduate Mech Engineer), Mike Wellicome (Supervisor), Paul Young (Supt Projects) and Hernando Vidal (Mechanical Engineer). Cleaning request to Frank Garcia 24.2.04.
Risk:	<p>Safety – Managed within Safety Management Plan. Production loss due to delayed handback – Risk minimal.</p> <ul style="list-style-type: none"> • If work falls behind schedule. Work may be reduced in order to ensure timely handback. • Handback procedure/checklist. <p>Enviromental - Nil</p>

Appendix F

Tender, Contract and Award (Tollgate 4) Templates



PORTS & RAIL

QUOTES, TENDERS AND SOLE SOURCING

\$ Value	SOW	ATPTM	Tender Requirements	Tender Document and Responsibilities	ATPTC	Sign Offs
0-5k	Optional	Not Required	1 Quote	Department responsible Verbal	Not Required	SOW HSE & Department Manager
5-50k	Optional	Not Required	3 Written Quotes or Sole Source Sole Source addressed in and approved as part of ATPTC	Department responsible Cover Letter SOW Pricing Schedule (Annexure A) Reference to relevant terms and conditions	Short Form ATPTC for sole source only	SOW HSE & Department Manager ATPTC Company Representative Department Manager Senior Supply Services Officer – Sole Source only
50-150K	Required	Short Form ATPTM	Short Form Tender or Sole Source Sole Source addressed in and approval as part of ATPTM	Supply to manage tender process Cover Letter SOW (Department to raise) Pricing Schedule (Department to raise) Reference to relevant terms and conditions	Short Form ATPTC	SOW HSE & Department Manager ATPTM Company Representative Department Manager Senior Supply Services Officer (PS) Vice President
150-250k	Required	Long Form ATPTM	Formal Tender or Sole Source Sole Source addressed in and approval as part of ATPTM	Supply to manage tender process Department to raise SOW Pricing Schedule	Long Form ATPTC	SOW HSE & Department Manager ATPTM Company Representative Department Manager Supply Services Manager (LM) Vice President
250k+	Required	Long Form ATPTM	Formal Tender or Sole Source Sole Source addressed in and approval as part of ATPTM	Supply to manage tender process Department to raise SOW Pricing Schedule	Long Form ATPTC	SOW HSE & Department Manager ATPTM Company Representative Department Manager Manager Supply (TA) Manager Finance

TEN001 – Supply Department. Guide

TEN002 – Scope of Work

SCOPE OF WORK		PAGES 1 TO 25 ATTACHED
SOW NUMBER	084-C-0013	OMNICOM No
DESCRIPTION	PORT ORE HANDLING STACKER 5,6,7,8 JACKING PILECAPS AND PILES	
OFFICE OF ORIGIN	BHPB PTY LTD NELSON POINT ENGINEERING PROJECTS	
WRITTEN BY	M.GLAVOVIC	DATE 30/6/04
REVIEWED BY	DEAN SHIPP	DATE
TITLE OF REVIEWER	SUPERITENDENT PROJECTS	

STATUS APPROVAL BY BHPBIO RESPONSIBLE MANAGER/ENGINEER			
	SIGNED	DATE	REV
PRELIMINARY ONLY	.....	.....	.....
ACCEPTED	.....	.....	.....
ACCEPTED EXCEPT AS NOTED	.....	.....	.....
REVISE AND RESUBMIT	.....	.....	.....
APPROVAL BY BHPBIO RESPONSIBLE MANAGER			
.....DATE.....			
APPROVAL BY BHPBIO HSE MANAGER			
.....DATE.....			

No.	Date	Revisions	By	Ckd	Revd	BHPBIO
0		Issued for Tender				

1.0 LOCATION

This scope of work is for the design, documentation, supply of materials, installation and testing of reinforced concrete pile caps and pile foundations for the Stacker 5, 6, 7 and 8 Jacking Stands at BHP Billiton Iron Ore's Nelson Point facilities, Port Hedland, Western Australia.

4.0 GENERAL

2.1 The Company requires the design, documentation, supply of materials, installation and testing of reinforced concrete pile caps and pile foundations for the Stacker 5, 6, 7 and 8 Jacking Stands.

2.2 The Contractor shall carry out all work in a tradesman like and professional manner in accordance with the:

- Mines Safety and Inspection Act 1994 and the Regulations thereto as amended;
- Statutory Regulations;
- Site Industrial Agreement;
- Safety Conditions of Contract;
- The relevant Company's Specifications, Australian Standards, and this Scope of Work.

2.3 The Contractor shall obtain all necessary permits prior to commencing work. Minimum permits that are required for work on the Site are:

- Access/Shutdown Permits
- Hot Work Permits
- Excavation permit

2.4 The Contractor shall visit the Site to check:

- The relevant dimensions of the design components;
- All Site conditions to understand the full extent of the work prior to commencement of any work.

If any conflicts or discrepancies are found the Contractor shall contact the Company Representative for clarification.

2.5 When selecting sub-contractors for the work, the Contractor shall give preference to businesses based locally in Port Hedland, provided that they are cost competitive.

- The Contractor's Site Representative shall be on site for the entire period of the installation and commissioning works.
- All works will be undertaken under the direction and approval of the Company Representative.

2.6 Hold points are indicated in this Scope of Work by (H) and Witness points are indicated (W).

Work shall not proceed beyond a hold point without the approval of the Company's Representative.

A Hold Point, as defined in ISO 8402 – 1994, is a position in the production, erection, or cycle beyond which work under the Contract shall not proceed without mandatory inspection, verification and acceptance by the Company's Representative.

A Witness Point shall be a position in the production, erection, construction or inspection cycle where the option of attendance by the Company's Representative for

the purpose of verification and acceptance may be exercised by the Company's Representative.

The Contractor shall give the Company Representative at least 4 hours notice when each and every hold point and witness point is reached during construction. Proper coordination and good continuous supervision of the work under the Contract day and night is essential for safe and timely completion.

2.7 Safety

The Contractor must be responsible for safety on the Site.

The Contractor acknowledges that the Company is committed to achieving the highest possible performance in Safety and Occupational Health and have developed a systematic approach to Safety Management, which is set out in the Safety Conditions of Contract and our Safety Policy.

The Contractor shall ensure that all machinery, tools and other equipment used in performing the work under this Agreement are maintained in a fully serviced and safe condition and in conformity with all Mines Safety and Inspection Act Regulations and Occupational Health Safety and Welfare Regulations.

Safety Management Plan and Site Inductions

No work must be carried out on Site until:

- a) An Safety Management Plan (SMP) and Environment Management plan (EMP) for the Site has been submitted to and approved by our Representative or nominated delegate; and
- b) All employees have undergone site and sub-site specific Inductions.

JSA's

When requested by our representative or nominated delegate, you shall complete and forward JSA's for review and approval **prior** to commencing the identified services under the Agreement.

HSE Conceptual Risk Assessment

The list of assessed risks (refer to following page) is conceptual only. The contractor shall be responsible for carrying out a comprehensive Job Safety Analysis in accordance with BHPBIO Policies and Procedures:

Risk Analysis for SOW 084-C-0013: Stacker 5,6,7 & 8 Jacking Pile Caps and Piles					
No	<u>Consequence Type</u>	<u>Severity Factor</u>	<u>Exposure Factor</u>	<u>Probability Factor</u>	<u>Risk Rating</u>
1	Concrete works, earthworks, excavation – Moving Machinery – Possible Death or Injury	30	1	1	30
2	Hot Work, Cutting, Welding - Burn - Impairment/Disability	10	1	1	10
3	Installation of pilings – Incorrect methods – Possible Death or Injury	30	1	1	30
4	Lifting Items/Cranage - Impact - Damage to equipment	10	1	1	10
5	Slip/Trip - Fall - Impairment/Disability	10	1	1	10
6	Oxy Cutting - Explosion/Burn - Impairment Disability	10	1	1	10
7	Extension Cords/Boxes - Electric Shock - Possible Death	30	1	1	30
8	Stackers & Conveyors - Moving Equipment - Possible Death or Injury	30	1	1	30
9	Incorrect Isolation/Tagging - Stackers & Conveyors - Possible Death	30	1	1	30
10	Manual handling - Incorrect lifting techniques - Impairment or Disability	10	1	1	10
11	Air/Water Lines - Pressure - Impairment or Disability	10	1	1	10

1. All the above risks shall be managed and reduced using JSA, BHPBIO HSEC Safe Work Procedures, Contractor's Manual
2. For consequence type, severity factor, exposure factor & probability factor please refer Appendix 1.

5.0 WORK INCLUDED

3.1 The scope of works for this contract shall include, but shall not necessarily be limited to the provision of all labour, materials, plant and equipment and all other services necessary to perform the tasks detailed in the following sections.

3.2 The Port Hedland site is an operating plant concerned with the train unloading, processing, stockpiling and shipping of iron ore. The continued operation of the plant shall take priority over the pilecap and piling construction works. The Contractor shall liaise closely with the Company Representative where construction activities are likely to affect operation of the plant, particularly the stacking machines.

A schedule of access and shutdown requirements shall be prepared by the Contractor at the beginning of the project for approval by the Company Representative. Sufficient notice (minimum 7 days) shall be given to the Company Representative where changes are required to the schedule to minimise impact on Operations.

3.3 Part of the Works may involve crossing the existing rail tracks and bridges. The Contractor shall be aware of, and allow for these disruptions in their tender. The Contractor shall provide a traffic management plan that includes detailing suitable traffic control for construction plant if necessary.

3.4 General

The Contractor's works shall include, but not be limited to, the following:

- i) The preparation and upkeep of a Safety Management, Environmental Management and Quality Management. These plans shall be submitted to the Company Representative for approval prior to commencement of the on-site works.
- ii) The performance of all quality control and acceptance testing as specified under the Contract including the provision of suitably qualified testing personnel, testing equipment and facilities. This shall include preparation and submission of an inspection and test plan to the Company Representative for approval.
- iii) The supply of all test certificates and results, which shall be made available to the Company Representative progressively.
- iv) The provision of traceability and production records (MDR's) as specified under the Contract.

- v) The Contractor shall keep one full size set of prints of the Contract Documents for as-built Drawing purposes. This set shall be maintained in a clean condition on site and shall be marked-up by the Contractor to show the as-built works.

As-built measurements shall be made by a qualified surveyor. Deviations to the drawings shall be marked on the drawings in red ink with unchanged dimensions, locations and levels underlined in red ink. Each drawing shall be certified as "As-Built", dated and signed by the Contractor and Company Representative as soon as practicable after the completion of the work shown on that drawing. Drawings shall be delivered to the Company Representative who shall acknowledge receipt.

- vi) The provision of all temporary works required to protect existing infrastructure from construction vehicle movements. The Contractor shall be responsible for developing a Traffic Management Plan to cover all aspects of the Works.
- vii) The Contractor shall be responsible for the effective control of all dust and windborne material emanating from the site as a result of the works throughout the period of the Contract.
- viii) The existing railway track at the site is designed for 25 tonne axle loads to the AREA standards. The Contractor shall ensure that construction equipment used during this Contract does not impose loads on the track in excess of the design loading. The details of any local actions are to be agreed with the Company Representative prior to any work commencing.
- ix) Identification of all existing services in the immediate vicinity of the Works by site inspection, and obtaining necessary permits including excavation permits, prior to commencement of any Works. This shall include hand digging where required. The Contractor shall request from the Company Representative the necessary composite services Drawings for the Work area from the index Drawing 540-C-9995/1 (refer Section 6.0). Existing services Drawings supplied by the Company are for information only and do not relieve the Contractor of their responsibility in locating and protecting services.
- xi) The Contractor shall be responsible for all survey and set-out work. This shall be carried out by a licensed surveyor unless otherwise agreed with the Company Representative.
- xii) The Contractor shall be responsible for obtaining all Statutory approvals, in a timely manner, required to complete the works.
- xiii) Design documentation and construction of all piles for structures listed in Section 3.6, to the extent and details shown on the Drawings. Details for the Works are included in the Specifications and Drawings listed in Section 4.0 – Contract Documents.
- xiv) Design documentation and construction of all pilecaps for structures listed in Section 3.6, to the extent and details shown on the Drawings. Details for the

Works are included in the Specifications and Drawings listed in Section 4.0 – Contract Documents.

- xv) Clean up and removal off-site of all spoil and waste material.
- xvi) The Contractor's responsibility with respect to Safety Management is detailed in Section 7.0 – Contract Management.

3.5 Site Establishment

The Contractor's Works shall include, but not be limited to, the following:

- i) Supply of service facilities, secure storage and laydown areas (The Company will nominate an area for the Contractor within the Company's Nelson Point facilities) that the Contractor deems necessary. The preparation of the surface and drainage of this area for laydown shall be the responsibility of the Contractor.
- ii) All temporary power required for the construction of the Works.
- iii) Establish and maintain survey control required to complete the Works. This shall include verifying the location of existing items that impact on the Works. Any discrepancies between locations of items or tie-ins shown on the Drawings and locations determined by ground survey shall be reported to the Company Representative. This shall include the location of buried services.
- v) The Contractor shall take all necessary measures to ensure plant size is suitable to gain access to any restricted areas.

Items to be supplied by the Company for site establishment have been outlined in Section 5.1.3.

3.6 Work Area Breakdown

Construction works are broken down into portions as follows:

- i) Nelson Point Stacker No. 5 Jacking Pilecaps and Piles.
- ii) Nelson Point Stacker No. 8 Jacking Pilecaps and Piles
- iii) Nelson Point Stacker No. 6 Jacking Pilecaps and Piles
- iv) Nelson Point Stacker No. 7 Jacking Pilecaps and Piles

3.6.1 Stacker No. 5 Jacking Pilecaps and Piles

The Contractor's works shall include, but not be limited to, the following facilities:

- i) 2 off Pilecap and pile arrangements towards the East end of travel of the stacker.
- ii) 2 off Pilecap and pile arrangements towards the West end of travel of the Stacker.

3.6.2 Stacker No. 8 Jacking Pilecaps and Piles

- i) 2 off Pilecap and pile arrangements towards the East end of travel of the Stacker.
- ii) 2 off Pilecap and pile arrangements towards the West end of travel of the Stacker.
- iii) 1 off Pilecap and pile arrangement, south of the yard conveyor towards the middle of the length of travel of the Stacker.

3.6.3 Stacker No. 6 Jacking Pilecaps and Piles

- i) 2 off Pilecap and pile arrangements towards the West end of travel of the stacker.

3.6.4 Stacker No. 7 Jacking Pilecaps and Piles

- i) 2 off Pilecap and pile arrangements towards the West end of travel of the Stacker.

3.7 Civil

The Contractor's works shall include, but not be limited to, the following:

3.7.1 Piling and associated works

- i) Design of Pilecaps (including submission of Drawings to the Company's Representative for approval) and submission of detailed geotechnical and structural calculations and all data to the Company's Representative for approval all in accordance with Specification SPEC-084-C-0019.
- ii) Design of Piles (including submission of Drawings to the Company's Representative for approval) and submission of detailed geotechnical and structural calculations and all data to the Company's Representative for approval all in accordance with Specification SPEC-084-C-0019.
- iii) The design phase shall include for closely liaising with the Company Representative from award of Contract through to issue of Approved for Construction Drawings. The Tenderer shall clearly identify what allowance and assumptions have been made for the design of piles and pile caps.
- iv) Contractors shall allow for appropriate design and installation of piles in areas of restricted piling rig access, such as that encountered around existing structures.
- v) Monthly submission during off-site works and weekly submission during on-site works and continually maintaining a detailed project schedule, including close liaison with the Company Representative during the on-site works to plan, schedule and complete the works.
- vi) Inspection and testing of the works including preparation and submission for approval by the Company's Representative of an Inspection and Test Plan.

- vii) Surveying and set out of the works to identify each pile position and marking with a suitable steel or wood peg. Notwithstanding the location of such pegs, the Contractor shall not proceed with excavation/construction until access and penetration permits have been issued by the Company, particularly with respect to services.
- viii) Preparation of ground at each location at which a pile and pilecap is to be installed including any necessary temporary roads, ramps or hardstandings. This shall also include the temporary demolition of roadway and necessary excavation to allow the Company Representative to view the Trackwork cross-ties and allow determination of final pilecap positioning.
- ix) All demolished roadways shall be repaired by the Contractor at the completion of Works.
- x) Close liaison with the Company Representative on the exact location of Pilecap positions, including excavation of local area to determine the position of Trackwork cross-ties.
- xi) Excavation necessary for completion of the works including any necessary barricading and bounding.
- xii) Supply, fabrication, preparation, delivery and as necessary, handling, pitching, driving, and/or boring, drilling, casing installation, casing removal and splicing of piles to the locations shown on the Drawings and in accordance with the Specification.
- xiii) Testing of piles at the frequency specified and in accordance with Specification SPEC-084-C-0019.
- xiv) If cast insitu concrete piles are proposed, construction of a 10m dummy pile in an iron ore stock pile and later retrieval for examination and concrete testing.
- xv) In addition to the pile testing specified in Specification SPEC-080-C-0015, the carrying out of quality control inspection and testing checks that may be deemed necessary by the Company's Representative or by the Contractor to fulfill the Contractor's obligations under the Contract.
- xvi) Supply, fabrication, preparation, delivery, formwork, construction and all things necessary to complete construction of the pilecaps in accordance with the Specification and the Drawings. The Contractor shall use the hold down bolt templates supplied by the Company Representative.
- xvii) Removal of all debris, spoil and waste pile material including but not limited to concrete, grout and steel waste from each completed pile location and local leveling of the surrounding ground disturbed due to the pile installation works and disposal offsite at an approved location.
- xviii) Replacement and compaction of excavated material around the installed pilecaps to a level determined by the Company Representative.
- xix) Submission of all pile installation and test records. Concrete tests, reinforcement mill certificates etc. as part of a final MDR submission.

- xx) Preparation and completion of as-built drawings of pilecaps and piles.
- xxi) Work area barriers as required by the Company's Representative.

3.7.2 Structural

- i) Installation of the Pilecap local steelwork as defined on the drawings.
- ii) Use of the hold down bolt templates during construction of each Pilecap.

3.8 Work Excluded

The Contractor shall carry out all works outlined in this SOW.

3.9 Terminal Points

The battery limits for the project shall be the minimum area required to complete the works as detailed. Access shall generally be limited to established roads except where specifically noted on the Drawings.

3.10 Testing and Commissioning

Testing of piles, where applicable, shall be carried out in accordance with SPEC-080-C-0015 – Piling.

6.0 CONTRACT DOCUMENTS

4.1 Contract Specifications

Specification No	Rev	Title
SPEC-084-C-0019	A	PORT ORE HANDLING STACKERS 5,6,7 AND 8 JACKING PILECAPS AND PILES
SPEC-080-C-0014	1	PRODUCT AND CAPACITY EXPANSION SUPPLY AND PLACEMENT OF CONCRETE
SPEC-000-S-0011	18	MINE AND PORT STANDARD SPECIFICATION FOR SUPPLY, FABRICATION, DELIVERY AND ERECTION OF STEELWORK
SPEC-000-S-0102	10	MINE AND PORT STANDARDS CONCRETE WORK

4.2 Contract Drawings

Drawing No	Rev	Title
084-C-5513	A	PORT ORE HANDLING – NELSON POINT STACKERS 5, 6, 7, 8 JACKING STACKERS 6 & 7 PILE FOOTING LOCATION PLAN
084-C-5514	A	PORT ORE HANDLING – NELSON POINT STACKERS 5, 6, 7, 8 JACKING STACKERS 5 & 8 PILE FOOTING LOCATION PLAN
084-C-5515	A	PORT ORE HANDLING – NELSON POINT STACKERS 5, 6, 7, 8 JACKING STACKERS 6 & 7 PILE FOOTING CROSS SECTION AND DETAIL
084-C-5516	A	PORT ORE HANDLING – NELSON POINT STACKERS 5, 6, 7, 8 JACKING STACKERS 5 & 8 PILE FOOTING CROSS SECTION AND DETAIL
084-C-5517	A	PORT ORE HANDLING – NELSON POINT STACKERS 5, 6, 7, 8 JACKING PILE CAP AND PILE DESIGN DESIGN REQUIREMENTS
084-C-5518		PORT ORE HANDLING – NELSON POINT STACKERS 5, 6, 7, 8 JACKING PILE CAP AND PILE DESIGN SPARE (FOR CONTRACTOR USE)

4.3 Technical Reports, Manuals and Data

Document No	Rev	Title
NelsonPointFac Bf5395_11_02	Draft	FACTUAL GEOTECHNICAL INVESTIGATION BHP BILLITON IRON ORE PACE PROJECT NELSON POINT UPGRADE PORT HEDLAND, WA

The Contractor shall make his own interpretation of the accuracy and sufficiency of the reports and advise if further information is deemed necessary.

4.4 Safety Management Plan

The Contractor shall prepare and submit to the Company Representative for approval a Safety Management Plan.

4.5 Environmental Management Plan

The Contractor shall prepare and submit to the Company Representative for approval an Environmental Management Plan.

4.6 Quality Assurance

The Contractor shall prepare and submit to the Company Representative for approval an inspection and Test Plan (ITP).

4.7 Planning, Scheduling and Reporting Requirements

The Contractor shall prepare a detailed program of the works and closely liaise with the Company Representative throughout the project.

7.0 MATERIAL SUPPLY

5.1 Company Supply

5.1.1 General

The Company shall make available or provide to the Contractor, the following materials and services only:

Survey control points.

5.1.2 Hold Down Bolt Templates

The Company shall supply 2 off steel templates for the pilecap hold down bolts, one (1) for pilecaps installed south of a conveyor and one (1) for pilecaps installed north of a conveyor.

5.1.3 Site Establishment

A laydown area only will be provided at Nelson Point. The Contractor will be responsible for the design, supply and installation of cyclone rated, engineer certified, office and crib room facilities within the site if required.

5.1.4 Drawings

The Company shall supply Microstation files of the tender drawings for the Contractor to use, update and prepare Approved for Construction drawings for approval prior to the commencement of construction and as-built drawings following completion of construction.

5.1.5 Piles

The Company shall supply a fixed quantity of 800mm, 1000mm and 1100mm steel circular piles that the Contractor may consider for use if deemed suitable.

5.2 Contractor Supply

The Contractor shall supply all other items necessary for execution of the Works.

8.0 REFERENCE DOCUMENTS

6.1 Reference Drawings

Drawing No	Rev	Title
080-M-0195	5	PORT ORE HANDLING NELSON POINT SCHEMATIC LAYOUT KEY PLAN
084-S-5514	B	PORT ORE HANDLING – NELSON POINT STACKER 5, 6, 7 & 8 JACKING STANDS GENERAL ARRANGEMENT
084-S-5516	B	PORT ORE HANDLING – NELSON POINT STACKER 5, 6, 7 & 8 JACKING STANDS MODULE 1 DETAILS
080-C-5122	0	PORT ORE HANDLING – SOUTH YARD CIVIL WORKS DETAIL EARTHWORKS TYPICAL CROSS SECTIONS
080-C-5138	0	PORT ORE HANDLING CIVIL WORKS TYPICAL SECTIONS THROUGH STOCKYARDS
087-C-0100	4	PORT ORE HANDLING CONVEYORS 1500 CONVEYOR P12 CIVIL ARRANGEMENT
084-C-5101	3	PORT ORE HANDLING STACKER NO. 5 & RECLAIMER No. 5 TRACKWORK ARRANGEMENT AND DETAILS
080-C-0414	0	PORT ORE HANDLING – SOUTH YARD STACKERS NO. 6&7 AND RECLAIMER NO. 6 TRACKWORK ARRANGEMENT AND DETAILS

TEN003 – Annexure A Schedule of rates

INVITATION TO TENDER NO. SFH-04-###
JOB DESCRIPTION
ANNEXURE 'A' - CONTRACT AMOUNTS SCHEDULE

ITEM	LABOUR	PLANT	MATERIAL	SUBTOTAL
PRELIMINARIES				
<i>(Tenderer to identify preliminaries)</i>				
Safety Management				
Demobilisation				
Mobilisation				
TOTAL PRELIMINARIES:				
SCOPE OF WORK				
OTHER: (Tenderer to specify details)				
TOTAL FIXED LUMP SUM:				

TEN004 – Tender Site Meeting Agenda/Minutes Template
TENDER BHP-03-402
CONSTRUCTION OF WORKSHOP AT THE WESTERN YARD

SITE MEETING**AGENDA**

Date: 9 January 2003
Time: 10:30-12:30am
Location: Western Yard

BHP Representatives: Paul Young (Engineering Services)
Terry Comery (Engineering Services)
Wayne Glew (Contracts)
Brendan Lynn (Western Yard)
Phil Quick (Electrical)
Debra Drummond (Contracts)

Invited Tenderers: Pilbara Constructions
Jaxon Constructions
Wylie & Skene
Perth Building Company

Agenda

Topic	Who
Introduction	Wayne Glew
Commercial Review of tender document, tender requirements, pricing structure and other commercial requirements	Wayne Glew
Contract Management Outline of how the contract will be managed -progress reporting - meetings	Wayne Glew
Technical Review of Drawings, Air Conditioning requirements, civil and structural Electrical	Terry Comery Phil Quick
Other Issues Location of workshop – possible change Additional warehouse – possibility	Wayne Glew
Questions and Answers	All
Close	Wayne Glew

Minutes

Topic	Action	Who
Introduction		
Commercial Review of tender document, tender requirements, pricing structure and other commercial requirements		
Contract Management Outline of how the contract will be managed -progress reporting - meetings		
Technical Review of Drawings, Air Conditioning requirements, civil and structural Electrical		
Other Issues		
Questions and Answers		
Close		

TEN005 – Safety and Environmental Plan

SHIPLOADING / CRUSHING

Safety and Environmental Management Plan

For

Sample Station Modifications

Rev A.

Written by
Michael
Shenton
20th
September
2003

TABLE OF CONTENTS

1.0	Project goal	2
2.0	Key stakeholders/ Project Organization chart	2
3.0	Project communication	2
4.0	Reference Documents	2
5.0	KPI's	2
6.0	Site Safety File	2
7.0	Project Risk Assessment	3
8.0	Inductions	3
9.0	Training	3
10.0	Personal Protective equipment	4
11.0	Plant and Equipment	4
12.0	Traffic management	4
13.0	Permits/Isolations	5
14.0	Inspections/audits	6
15.0	Emergency Response	6
16.0	Cyclone Procedures	6
17.0	Evacuation Procedures	7
18.0	Accident/Incident	7
19.0	Material Safety data Sheets (MSDS)	7
20.0	Toolbox meeting	8
21.0	Housekeeping	8
22.0	Safe Work procedures	8
Forms		
	Site Safety Audit	10
	Project Specific Induction	11
	Site Toolbox Meeting Minutes	12
23.0	Environmental Management Plan	13
23.1	Project Goal	13
23.2	Litter	13
23.3	Noxious Wastes and Oils	13
23.4	Work areas	13
23.5	Servicing of Vehicles	14
23.6	Diesel Spill Management	14
23.7	Dust Minimisation	14
23.8	Removal of Asbestos Flanged Gaskets	15

1.0 PROJECT GOAL

Zero harm to all project personnel.
Minimal disruption to Shiploading / crushing activities.

2.0 KEY STAKEHOLDERS

Shiploading (Sampling)

Jaqui McGill – Asset Owner 0409 523 481 / 9173 6651
Shane Wilson 9173 6217

Shiploading

Kevin Dunne 0407 870 184 / 9173 6407
Russell Denton 0419-916 556 / 9173 6219
Lenny Wright 0419 389 171 / 9173 6210

Crushing

Kristian Ravn – Asset Owner
Frank Garcia

Engineering services

Michael Shenton - Snr Project Engineer 0407 919 077
Mike Wellicombe - Site Supervisor (0407 158 914)
Paul Young - Superintendent Projects 0419 916 550 / 9173 6350

Contractor in charge of installation

Samya Construction - John McKay (Manager) 0417 926 076 / 9173 5010

3.0 Project Communication

All communications in the first instance to be directed to Michael Shenton or Mike Wellicombe for the duration of the installation works. If higher-level communications are required Contact Paul Young or Phil Pyle.

4.0 Reference Documents

BHPBilliton Contractor Safety Management Manual MAN-OHH-SAF-003

5.0 Project KPI's

- No lost time injuries
- Near misses reported and Investigated
- Daily SAO completed
- Weekly toolbox/safety meetings
- Daily prestart Meetings
- 100% compliance with SAO process and Weekly toolbox meetings
- On time/on budget delivery

6.0 Site Safety File

A copy of SAO's and daily checklists will be kept in the safety file, together with appropriate permits, toolbox meeting minutes, Material Safety Data sheets, housekeeping checklist, training records, induction register, statutory licenses and Job Safety Analysis/ risk analysis will also be held in the safety file.

7.0 PROJECT RISK ASSESEMENT/JSA's

Works under the project shall undergo a preliminary Hazard analysis and risk assessment utilizing the BHP Billiton risk assessment matrix and Safety Procedure SPR-OHH-SAF-012 to determine the level of risk associated with each identified preliminary hazard.

High Risk activities identified at this preliminary stage will be analysed in order to attempt to design out activity.

Low level and acceptable risks will be managed on site accordingly to standards and procedure outline in BHPBilliton's Contractor Safety management Manual MAN-OHH-SAF-003.

All completed JSA's will be submitted on Form FRM-OHH-SAF-064. All JSA's will be completed by the workgroup. All JSA's will be referred to, and approved by Michael Shenton or Mike Wellicombe of BHP Billiton before each activity is permitted to commence.

8.0 INDUCTIONS

In order to commence work all personnel will undergo the following training.

Main gate Induction.
Crushing Induction
Project specific Induction

9.0 TRAINING

Relevant competency skills are required prior to operation of plant and machinery

The contractor confirms that all employees entering the site have received sufficient training and possess the necessary skills to perform the contracted works safely. The list of skills and competencies held by employees working on this project are listed below. Included in this list are National Certificates of Competency and the corresponding certificate number.

<i>Name of Employee</i>	<i>Skills and Competencies Held (Include-Work Cover induction & date, BHP Iron Ore Railways and Ports induction & date)</i>
See attachment	

10.0 PERSONAL PROTECTIVE EQUIPMENT

Minimum PPE to be worn at all times

- Approved safety footwear,
- Safety glasses, (Not required while inside fully enclosed Cab)
- Hard hat (Not required while inside fully enclosed Cab)
- Ear plugs (where applicable)
- Gloves while performing Bitum cloth work.
- Seat belts will be worn whilst operating mobile plant and machinery.
- Harness shall be used while working at heights.

Additional PPE worn as identified in the JSA for the task.

11.0 PLANT AND EQUIPMENT

All plant and equipment will be inspected on a daily basis for safety and all operators will ensure that they have the appropriate PPE prior to the commencement

of operations. Copies of the plant and equipment checklists will be placed in the site safety file.

It is anticipated that the following mobile plant will be brought onto site and operated by employees of the Contractor.

<i>Type</i>	<i>Purpose</i>
Brambles 100T Crane	P501 Primary Cutter
More equipment will be listed closer to the shutdown.	

12.0 TRAFFIC MANAGEMENT/PARKING

It is foreseen that vehicles and parking may be a significant issue that will require management throughout the project duration. The following is a proposed method to manage vehicles issues and will be subject to review upon project commencement. Line area feedback is requested if any issues are perceived to arise.

Project parking for BHPBilliton personnel, Contractor supervision and other vehicles not directly related to construction shall be in the car park near evaporated pond.

DRIVING ON SITE

Vehicle Operations:

All drivers of vehicles to observe all traffic signs on any worksite.
All drivers of vehicles (including occupants) must wear seat belts.

13.0 PERMITS/ISOLATIONS

Permits required on site are:

Access permits
Hot work permit
Floor removal permit
Confine space permit

BHPBilliton Tagging regulations to be adhered to at all times.
If plant and machinery maintenance work is required on site, equipment will be tagged with the appropriate tag in accordance with BHPBilliton tagging regulations – **No Exceptions**. This includes trucks and vehicles.

14.0 EMERGENCY RESPONSE PROCEDURES

In the event of an emergency or accident requiring first aid immediately contact Emergency services on EXT 6000 or **9173 6000**.

State the following:

Your name
 Your location → Transfer Station No. 1
 Nature of emergency or accident
 No. of injured personnel

15.0 CYCLONE PROCEDURES

In the event of a tropical cyclone developing off the North West Coast, the following procedure shall apply to the project:

Cyclone watch

Contractor to notify all project personnel of cyclone and monitor.

Blue Alert (48 hours)

Contractor to notify all project personnel of blue alert.
 Continually monitor with your supervisor on the cyclones path and progress.
 Inspect the worksite, any loose equipment and material is to be tied down or removed.
 Terminate all pending material deliveries.
 Arrange emergency dewatering pump.

Yellow Alert (12 hours)

Contractor to notify all project personnel of yellow alert.
 Additional rigorous worksite check.
 Deliver dewatering pump and setup
 Place emergency sandbags to flood surge level.
 Following a directive from supervision advise staff when to demobilize.

Red Alert

Stay indoors in a secure place and await for all clear instructions
 End of Red Alert (All Clear)
 Supervision and BHPBilliton company representative will arrange and carry out an inspection of the worksite and make safe any dangerous situation.
 Key stakeholders will be advised that Engineering services intend to continue works.
 Return to work and await instructions from supervision.

16.0 EVACUATION PROCEDURES

Contact Emergency Services

Check Transfer Station No. 1 and worksite to ensure all staff are out of any hazard area.

Walk to the muster point and make sure that all staff are accounted for.

Ensure area is kept clear until advised by BHPBilliton to return to work.

17.0 ACCIDENT/INCIDENT

All accidents/incidents are to be reported immediately to Michael Shenton or Mike Wellicombe and then to all key stakeholders on a BHPB Incident form. The level of investigation will be determined by BHPBilliton Iron Ore immediately following each report. Accident investigation will be conducted jointly by the contractor, Mike Wellicombe and Michael Shenton

Ensure area is left undisturbed

18.0 MATERIAL SAFETY DATA SHEETS

All hazardous goods that are on any worksite will be safety department approved and a copy of the material Safety data Sheet (MSDS) will be kept in the site safety file.

19.0 TOOLBOX MEETING PROCEDURE

Weekly toolbox meetings will be held as a minimum and documented and a copy kept in the site safety file at all times. BHPBilliton will attend each toolbox meeting to provide feedback, answer queries etc.

Additional toolbox meetings will be held for the following reasons:

1. A change in the JSA has taken place.
2. An incident has occurred.

20.0 HOUSEKEEPING

All worksites will be kept clean at all times, all materials or stock will be stored away if not in use, all machinery and equipment will be kept in a clean state. The contractor shall be responsible for this task.

21.0 SAFE WORK PROCEDURES

The contractor shall work in accordance with the following BHPBilliton Safe work Procedures .

SPR-OHD-SAF-001	Driving Safety Standards
SPR-OHD-SAF-003	Contractor Light Vehicles & Mobile Equipment - Safety Rules
SPR-OHH-SAF-003	Manual Handling
SPR-OHH-SAF-005	Housekeeping
SPR-OHH-SAF-006	Hazardous Materials Management
SPR-OHH-SAF-007	Management of Personal Protective Equipment - Safety Footwear
SPR-OHH-SAF-009	Incident Reporting & Investigation
SPR-OHH-SAF-010	Job Safety Analysis Management
SPR-OHH-SAF-012	Hazard Identification & Risk Management
SPR-OHH-SAF-014	Workplace Safety Inspection Guidelines
SPR-OHH-SAF-016	Working at Heights
SPR-OHH-SAF-018	Waste Management
SPR-OHH-SAF-020	Colour Coding and Layout for the inside of Buildings
SPR-OHH-SAF-025	Heat Stress Management
SPR-OHH-SAF-029	Site Induction
SPR-OHH-SAF-035	Safe Act Observation Process
SPR-OHH-SAF-039	Procedure for Using Access, Shutdown, Excavation & Penetration Permits
SPR-OHH-SAF-051	Site Cyclone Procedure
SPR-OHH-SAF-053	Guidelines for the Use of Portable Grinders fitted with Cut Off Discs
SPR-OHH-SAF-054	Site Access Procedure
SPR-OHH-SAF-091	GSAP - Site Cyclone Procedure

Sample Station Modifications

SITE SAFETY AUDIT

CHECKLIST ITEMS

DESCRIPTION	OK Y/N	ACTION
1. Vehicle checklists		
2. Safe work procedures (JSA)		
3. Permits current		
4. Hand tools/extension leads		
5. Chemicals		
6. Equipment/plant		
7. Cranes/ rigging gear		
8. First aid kit		
9. Safety inductions		
10. Statutory inductions		
11. Personal safety gear		
12. Portable ladders/scaffolding		
13. Isolation procedures		
14. Oxy Acetylene & electrical arc		
15. Housekeeping		

Inspected By: _____ Title: _____ Date: _____

Site Supervisor: _____

Date: _____

Sample Station Modifications

PROJECT SPECIFIC INDUCTION

NO

YES

SUPERVISORS RESPONSIBILITIES

COMMUNICATIONS (RADIO ETC)

HYGIENE (TOILETS, CRIB ROOM, PERSONAL)

NO SMOKING AREAS

PRE- START CHECK CARDS

MIN PPE

FIRE EXTINGUISHERS

EMERGENCY No.s

EMERGENCY MUSTER POINT

SAFETY MEETINGS (TOOLBOX)

ROAD RULES (SITE)

HOURS OF WORK

Sample Station Modifications

SITE TOOLBOX MEETING

MEETING AGENDA

ITEM

ACTION

PRESENT	
PERSONAL SAFETY	
ACCIDENTS/INCIDENTS	

DAYS PROGRAM	
GENERAL ISSUES	

SITE SUPERVISOR: _____

DATE: _____

22.0 ENVIRONMENTAL MANAGEMENT PLAN

22.1 PROJECT GOAL

Minimal impact on the environment
Zero dust generation

22.2 LITTER

Litter bins shall be provided at the site

Litter will be removed on a regular basis (dependant on usage) to a designated area and disposed of off-site.

22.3 NOXIOUS WASTES AND OILS

It is anticipated that the presence of hazardous materials will be minimal during construction. However if required the following procedure shall apply:

22.3.1 STORAGE

All hazardous materials will be stored in accordance with the manufactures instructions in clearly marked containers.

Material safety data sheets for all materials will be kept in the site safety file.

22.3.2 DISPOSAL

All wastes shall be disposed off site in accordance with the manufactures instructions

In the event of spillages the company shall remove any soil affected by the spillage and dispose of the contaminated soil in a manner approved by the client. The contaminated area will be covered with good soil and reinstated to its natural condition

22.4 WORK AREAS

Laydown areas will be provided local to the work.

The site will be kept neat and tidy at all times, litter, waste etc will be stored and disposed of as per item 1 and 2 above.

22.5 SERVICING OF VEHICLES

Vehicles will be fully serviced off site as per maintenance schedule. Daily inspections of vehicles will be carried out at the lay down area. Vehicles with oil leaks will be removed from site immediately and repaired before reinspected and permitted to recommence work on site.

22.6 DIESEL SPILL MANAGEMENT

The following procedure shall apply in the event of a diesel spill on site.

- 1.The contractor shall immediately act to prevent further spills and prevent spill entering the harbour waters.
- 2.The contractor shall immediately notify the company representative who shall in turn notify the environmental dept.
- 3.The contractor will stand by and assist in the cleanup of the spill under the direction of the BHPBilliton environmental department representative.

22.7 DUST MINIMISATION

Dust generation has been identified as low impact for this project. The generation of dust will be included onto the JSA's as a point to monitor

throughout construction. Primary sources of dust generation however will be during seawall construction and foundation works for the substation extension. If dust generation levels are significant during these activities then the areas of work will be watered as the primary method of dust control.

TEN007 – Bid Clarification Minutes

MINUTES OF MEETING

SUBJECT:

PURPOSE OF MEETING:

Bid Clarification Meeting

DATE:

LOCATION:

Afternoon - PHAM BUILDING

RECORDED BY: B. Howe

ATTENDEES:
LTD

P. YOUNG

BHPB IRON ORE PTY

DISTRIBUTION:
LTD

ATTENDEES
FILE

BHPB IRON ORE PTY

Item		Action
1.0	<u>SAFETY</u>	
1.1	BHPBIO stated that the target for this project is 0 accidents and 0 incidents.	
1.2	The safety plan for this project is to be three tiered:- <ul style="list-style-type: none"> • Contractor Safety Manual plan • Safe Work Procedures/JSA's 	
1.3	All personnel including subcontractors and suppliers are to have a main induction and a project specific induction for the job.	
1.4	An induction register is to be filled out which includes copies of all relevant tickets and licences.	
1.5	BHPIO Contractor passes are to be carried at all times.	
1.6	All relevant PPE is to be worn on the job at all times. For this job the mandatory PPE is: <ul style="list-style-type: none"> • Hard Hats • Approved Safety Glasses • Safety Footwear • Appropriate Protective Clothing Job Specifics must be worn as required by working conditions including: <ul style="list-style-type: none"> • Safety Harness • Gloves 	
1.7	WA road rules apply on the site at all times. Sign-posted speed limits and reverse parking signs are to be obeyed at all times.	
1.8	A register of all plant and equipment (including subcontractors and suppliers) is to be kept on site. This is to include cherry picker and generator if required.	
1.9	Prestart inspection sheets are to be completed for all main plant including hire equipment. This is to include the cherry picker with preliminary checklists to be signed off before use.	
1.10	A register of all lifting gear and applicable licences is to be kept on site for the duration of the job. All personnel using lifting gear, including cherry picker are to be familiar with operation of the specific equipment or gear and have the appropriate licences for the equipment.	

1.11	A register of all site vehicles is to be kept on site.	
------	--	--

MINUTES OF MEETING**PAGE 2****of 3**

Item		Action
1.12	All electrical equipment is to be checked and have the appropriate colour tagging	
1.13	Protective equipment is to be inspected daily via a daily inspection checklist.	
1.14	Safety inspections/audits will be carried out by BHPIO personnel throughout the duration of the site works.	
1.15	The contractor is to carry out their own internal inspections throughout the site works.	
1.16	In the case of an emergency safety personnel can be contacted on Channel 4 or (08) 9173 6000.	
1.17	Residual current devices protection required. All electrical shocks to be notified to safety immediately (08) 9173 6000.	
1.18	All accidents/incidents are to be reported and all injuries are to be taken directly to the first aid centre.	
2.0	<u>ORGANISATIONAL STRUCTURES</u>	
2.1	Contact Names and numbers:	
2.2		
3.0	<u>SITE ACCESS</u>	
3.1	<p>Relevant permits for the job are to be submitted to BHPIO for approval. They include:-</p> <ul style="list-style-type: none"> • Access/Shutdown • Excavation <p>Permit to be completed and approved in full prior to commencing any work on site. They are to be submitted with a maximum of one week duration.</p> <ul style="list-style-type: none"> • Hot Work Permit <p>A permit is required for each heat source including welding, grinding and cutting. Hot work permits to be updated daily.</p>	

	MINUTES OF MEETING	PAGE 3
of 3		

Item		Action
3.2	Relevant tags for the job include:- <ul style="list-style-type: none"> • Danger Tags • Out of Service Tags 	
3.3		
3.4	All danger tags are to be removed at the end of the shift and destroyed.	
3.5	Special attention is to be made to housekeeping at all times. Scrap metal is to be taken off site and disposed of by the Contractor.	
4.0	<u>Methodology</u> attached	
	<p>Meeting closed at hours. Next meeting to be advised - Nelson Point.</p> <hr/>	

TEN008 – Preliminary Tender Analysis

**INVITATION TO TENDER NO. BHP-03-341
CAPACITY FOR WORK**

OPENING DATE: <i>24/10/03</i>
TENDER OPENING COMMITTEE:
<i>Debra Drummond</i>
<i>Renee Hawkins</i>

ANALYSIS PREPARED BY:
NAME: <i>Paul Shinn</i>
POSITION: <i>SSSO</i>
PREPARED: <i>24-Oct-03</i>
REVISED:

ITEM	Kershaw Kinetics Pty Ltd		Prime Health Group		Not Applicable
FINANCIAL EVALUATION					
Variations to Tender Additional Work	1,500.00 day		\$47,680.00	\$62,900.00	
HYPOTHETICAL EVALUATION			\$0.00	\$0.00	
KT ANALYSIS			0.00	0.00	

RECOMMENDATIONS & APPROVALS:

SUPPLY SERVICES
RECOMMENDATION:
SIGNATURE:
PRINT: Paul Shinn SURNAME: SUPPLY
DATE:

COMPANY'S REPRESENTATIVE:
RECOMMENDATION
SIGNATURE:
PRINT Rachel Curry SURNAME: COMPANY REP
DATE:

MANAGEMENT APPROVAL (as per F&A 30)
RECOMMENDATION
SIGNATURE:
PRINT Anton Fouche SURNAME: MANAGER
DATE:

FINANCE & ADMINISTRAT
COST CODE:
SIGNATURE:
PRINT Basil Ahyick SURNAME: FINANCE
DATE:

TEN009 – Authority to Proceed to Contract

Authority to proceed to Contract
Services / Commodity / Capital
\$50,000.00 to \$150,000.00

OMNICOM #		
Contract Name:		Anderson St Stump Grinding
Work Location		Select: Local/National/Global
Cost Centre or WBS #:		5012-0-60-000-210
Proposed Duration		2 Days
Source Determination:		Select Tendered or Sole Sourced
Estimated Annual Value:		
A\$8K		
Estimated Total Commitment:		
A\$8K		
Recommended Tenderer:		North West Tree Lopping
Recommended by: Alister Macrae		
Department Representative	<i>All needs have been identified and addressed by the Scope of Work and the Scope of Work is operable by the responsible Asset department or function. Funds are available and all ongoing financial management requirements have been addressed. HSEC requirements have been satisfied and all ongoing HSEC requirements have been addressed. Attached is an "approved for Contract" Scope of Work</i>	
Position	Name	Signature and Date
Civil Eng	A. Macrae	
Supply Representative	<i>All procurement strategies have been identified and sourcing arrangements meet the requirements of BHP Billiton Iron Ore and Boodarie Iron.</i>	
Position	Name	Signature and Date
SSSO	P. Shinn	
Approvals	<i>Approvals per F&A level (refer CHT-SUP-000-013)</i>	
Position	Name	Signature and Date
Department Manager	<i>All needs have been identified and addressed by the Contract and the Contract is operable by the responsible Asset department or function.</i>	
Position	Name	Signature and Date
Supt Eng	Dean Shipp	
	Position	Name
Executive	(Vice/President)	Signature and Date

The following is an outline of the issues to be considered when completing this document. The issues raised are indicative only and each arrangement should be considered unique and treated accordingly. Delete or mark as N/A as required.

Previous Similar Works	Similar works <i>have been carried out by this Contractor previously. Work performed satisfactorily</i>
Works Required	Adhoc Stump grinding as directed by the Company Representative
Quotes / Sole Source	Sole Sourced due to there being only 2 contractors available to carry pout this work and one taking the attitude of a unrealistic start price of \$30K
Management of the Works	Company Representative will manage the day to day requirements of these works

TEN010 – Designing for Safety Review Stage 4

Same as CON008

TEN011 – BHPBIO Supply Department policies

Cannot include do to file being PDF fil

Appendix G

Construction (Tollgate 5) Templates

CON001 – KICKOFF MEETING AGENDA/MINUTES

MINUTES OF MEETING

SUBJECT:

PURPOSE OF MEETING: PRESTART MEETING

DATE:

LOCATION: Afternoon - PHAM BUILDING

RECORDED BY: B. Howe

ATTENDEES: P. YOUNG BHPB IRON ORE PTY
LTD

DISTRIBUTION: ATTENDEES
FILE BHPB IRON ORE PTY
LTD

Item		Action
1.0	<u>SAFETY</u>	
1.1	BHPBIO stated that the target for this project is 0 accidents and 0 incidents.	
1.2	The safety plan for this project is to be three tiered:- <ul style="list-style-type: none"> • Contractor Safety Manual plan • Safe Work Procedures/JSA's 	
1.3	All personnel including subcontractors and suppliers are to have a main induction and a project specific induction for the job.	
1.4	An induction register is to be filled out which includes copies of all relevant tickets and licences.	
1.5	BHPIO Contractor passes are to be carried at all times.	
1.6	All relevant PPE is to be worn on the job at all times. For this job the mandatory PPE is: <ul style="list-style-type: none"> • Hard Hats • Approved Safety Glasses • Safety Footwear • Appropriate Protective Clothing Job Specifics must be worn as required by working conditions including: <ul style="list-style-type: none"> • Safety Harness • Gloves 	
1.7	WA road rules apply on the site at all times. Sign-posted speed limits and reverse parking signs are to be obeyed at all times.	
1.8	A register of all plant and equipment (including subcontractors and suppliers) is to be kept on site. This is to include cherry picker and generator if required.	
1.9	Prestart inspection sheets are to be completed for all main plant including hire equipment. This is to include the cherry picker with preliminary checklists to be signed off before use.	
1.10	A register of all lifting gear and applicable licences is to be kept on site for the duration of the job. All personnel using lifting gear, including cherry picker are to be familiar with operation of the specific equipment or gear and have the appropriate licences for the equipment.	

1.11	A register of all site vehicles is to be kept on site.	
------	--	--

MINUTES OF MEETING**PAGE 2**

of 3

Item		Action
1.12	All electrical equipment is to be checked and have the appropriate colour tagging	
1.13	Protective equipment is to be inspected daily via a daily inspection checklist.	
1.14	Safety inspections/audits will be carried out by BHPIO personnel throughout the duration of the site works.	
1.15	The contractor is to carry out their own internal inspections throughout the site works.	
1.16	In the case of an emergency safety personnel can be contacted on Channel 4 or (08) 9173 6000.	
1.17	Residual current devices protection required. All electrical shocks to be notified to safety immediately (08) 9173 6000.	
1.18	All accidents/incidents are to be reported and all injuries are to be taken directly to the first aid centre.	
2.0	<u>ORGANISATIONAL STRUCTURES</u>	
2.1	Contact Names and numbers: Aliatair Macrad – 9173 5997	
2.2		
3.0	<u>SITE ACCESS</u>	
3.1	Relevant permits for the job are to be submitted to BHPIO for approval. They include:- <ul style="list-style-type: none"> • Access/Shutdown • Excavation Permit to be completed and approved in full prior to commencing any work on site. They are to be submitted with a maximum of one week duration. <ul style="list-style-type: none"> • Hot Work Permit A permit is required for each heat source including welding, grinding and cutting. Hot work permits to be updated daily.	

	MINUTES OF MEETING	PAGE 3
of 3		

Item		Action
3.2	Relevant tags for the job include:- <ul style="list-style-type: none"> • Danger Tags • Out of Service Tags 	
3.3		
3.4	All danger tags are to be removed at the end of the shift and destroyed.	
3.5	Special attention is to be made to housekeeping at all times. Scrap metal is to be taken off site and disposed of by the Contractor.	
4.0	<u>Methodology</u> attached	
	<p>Meeting closed at hours. Next meeting to be advised - Nelson Point.</p> <hr/>	

CON002 – Construction Schedule

Same as CON006

CON003 – Shutdown Request

Shutdown Request

DEPARTMENT REQUESTING	Engineering Services – Mladen Glavovic X6430 0400 241 603
AREA:	Crushing – TCB1
JOB NO/WORK ORDER NO:	5200 475 076
CAPITAL ALLOCATION NO:	5012.C.50028
ITEM DESCRIPTION	Car Dumper No. 1
SHUTDOWN DURATION:	72 Hours Round the clock
REASON FOR SHUTDOWN:	Install CD1 spillage mitigation modifications: <ul style="list-style-type: none"> • Extend middle wedge • Enclose the cavity at Bin1 east wall. • Installation of Dura plate at VF1 Chute
CONTRACTOR:	Excell Resources – Scaffold Hedland Sheet Metal 4 personnel during day shift 5 personnel during night shift
EQUIPMENT:	Small trucks/Vehicles in North parking area.
LINE AREA REP	Kristian Ravn
EQUIPMENT/OPTIONS NOT AVAILABLE TO OPERATIONS:	<ul style="list-style-type: none"> • Car Dumping at No. 1 dumper. • P1 Belt • Feeders 1-6
EQUIPMENT/OPTIONS AVAILABLE TO OPERATIONS:	<ul style="list-style-type: none"> • NA
START DATE/TIME: COMPLETION DATE/TIME	
ISOLATIONS REQUIRED:	All 6 VFs, Cell 1&2 drive and brake, Derailers (east and west), P1 Drive and Brake. Lockbox to be used. Mladen to train workgroup in lock box procedure.
SAFETY MANAGEMENT	Refer Safety Management Plan (Attached).
GENERAL COMMENTS	

<ul style="list-style-type: none"> • Supervision provided by Mladen Glavovic (Graduate Mech Engineer), Mike Wellicome (Supervisor), Paul Young (Supt Projects) and Hernando Vidal (Mechanical Engineer). • Cleaning request to Frank Garcia 24.2.04.
Risk
<p>Safety – Managed within Safety Management Plan. Production loss due to delayed handback – Risk minimal.</p> <ul style="list-style-type: none"> • If work falls behind schedule. Work may be reduced in order to ensure timely handback. • Handback procedure/checklist. <p>Enviromental - Nil</p>

Attachments:

1. Shutdown Schedule.
2. Safety Management Plan.



CON004 Note to Site

BHP Billiton Iron Ore

Memorandum

Date

To Workgroups, key people

CC Key superintendents, your Supt and Manager

From Your name and position

Our Ref Writer: Author File number

Notification of Construction

The construction of a new structure for the Crushing and Screening Plant Wet Scrubber shall commence this week and will take place for approximately 3 months.

The new Wet Scrubber will be located between the existing Bag House Dust Collector 2 and the tertiary screens. A laydown area will be set across the road area near conveyor CN 28.

During this time access to the construction and laydown area will be restricted to construction personnel only. During this time some minor disruption may occur to access around conveyor CN51 and CN 36 drive area which shall be advised.

Authorised sender's name

Authorised sender's title

Contact Officer: (Name if other than sender and if not already included)

Enc List any enclosures/attachments

Bcc List any blind copies These should not appear on the the original

CON005 – Shutdown Safety Plan

To large to include

CON006 – 50% Safety, Environmental review

PROJECT MANAGEMENT FRAMEWORK

Construction

Project 50% Safety, Environmental and Quality review

For

<Project Title>

Project:			
Project Manager:		Champion:	
Requested By:			
Client(s)		Date:	
<u>Consultants Brief No.</u>			

Executive Summary:

Incidents to date:

-
-

Emerging trends(s):

-
-

Audited by:

-

Significant Risk item/Score

-

Author:

-

INTRODUCTION / BACKGROUND

Problem Statement *(Briefly describe the Project)*

A description of the relevant project circumstances and environment,

REVIEW OF INCIDENTS TO DATE *(Safety, environmental, discuss project culture, general attitudes etc)*

REVIEW OF SAFETY AND ENVIROMENTAL MANAGEMENT PLAN

PROJECT AUDITED BY *(Ay Least One Independent Safety, Enviromental And Quality Audit)*

Results/Comments

Detailed Project Hazard Analysis/Risk Assessment *(refer BHPBIO Hazard Assessment matrix):*

A preliminary hazard analysis has been undertaken using BHPBilliton Enterprise Wide Risk Management System, EWRM STANDARD NO. 1 –

Other comments

ATTACHMENTS

The following are attached in support of this project business case:

Delete those as required.

Copies of incident Forms

Copies of Independent audit

CON007 – Pre-operation Review Request**PROJECT MANAGEMENT FRAMEWORK****Execution****PRE-OPERATION
TEMPLATE****REVIEW****REQUEST**

Project Title:	
Project Manager:	Date:

From:**To:**

The plant/equipment described below is nearing completion of pre commissioning and testing and will shortly be ready to commence operation. You are invited to participate in a joint review/inspection of the plant/equipment to determine any outstanding items that require attention/rectification prior to the commencement of operation.

Details of plant/equipment:

The anticipated date for initial operation is *{insert date}*.

Review Date: *{Insert date}*

Review Time: *{Insert Time}*

Meet At: *{Insert meeting place}*

Signed:

Distribution:

http://ironore.bhpbilliton.net/scripts/viewoverview_contact.asp?NID=3702

CON008 – Construction Progress meeting

Same as previous meeting Agendas/Minutes

CONS009 – Safety procedures

SAFETY SYSTEMS PROCEDURES	
Procedure Number	Title
<u>Guidelines</u>	Guidelines - Election of Safety Reps, Safety Committees, Resolution of Issues
<u>SPR-OHD-SAF-001</u>	Driving Safety Standards
<u>SPR-OHD-SAF-002</u>	Driving Off Site
<u>SPR-OHD-SAF-003</u>	Contractor Light Vehicles & Mobile Equipment - Safety Rules
<u>SPR-OHH-SAF-003</u>	Manual Handling
<u>SPR-OHH-SAF-004</u>	Electrical Hazard Management
<u>SPR-OHH-SAF-005</u>	Housekeeping
<u>SPR-OHH-SAF-006</u>	Hazardous Materials Management
<u>SPR-OHH-SAF-007</u>	Management of Personal Protective Equipment - Safety Footwear
<u>SPR-OHH-SAF-009</u>	Incident Reporting & Investigation
<u>SPR-OHH-SAF-010</u>	Job Safety Analysis Management
<u>SPR-OHH-SAF-012</u>	Hazard Identification & Risk Management
<u>SPR-OHH-SAF-013</u>	Screening for New/ Modified Plant & Equipment
<u>SPR-OHH-SAF-014</u>	Workplace Safety Inspection Guidelines
<u>SPR-OHH-SAF-016</u>	Working at Heights
<u>SPR-OHH-SAF-017</u>	Rehabilitation of Injured Employees
<u>SPR-OHH-SAF-018</u>	Waste Management
<u>SPR-OHH-SAF-019</u>	Continuous Improvement Action Plan (CIAP)
<u>SPR-OHH-SAF-020</u>	Colour Coding and Layout for the inside of Buildings
<u>SPR-OHH-SAF-021</u>	Critical Incident Management
<u>SPR-OHH-SAF-025</u>	Heat Stress Management

SPR-OHH-SAF-029	Site Induction
SPR-OHH-SAF-035	Safe Act Observation Process
SPR-OHH-SAF-037	Procedure for the Removal of Flooring & Handrailing
SPR-OHH-SAF-039	Procedure for Using Access, Shutdown, Excavation & Penetration Permits
SPR-OHH-SAF-040	Confined Space Management
SPR-OHH-SAF-041	Confined Space Work Safety Analysis
SPR-OHH-SAF-042	Working in a Confined Space
SPR-OHH-SAF-050	Asbestos Removal, Handling & Disposal
SPR-OHH-SAF-051	Site Cyclone Procedure
SPR-OHH-SAF-052	Management of Change Policy
SPR-OHH-SAF-053	Guidelines for the Use of Portable Grinders fitted with Cut Off Discs
SPR-OHH-SAF-054	Site Access Procedure
SPR-OHH-SAF-091	GSAP - Site Cyclone Procedure
SPR-OHH-SAF-095	Barricading & Warning Signs

CONS010 – Crane Request Form

Nelson Point Crane / Truck Request		
<u>Requested By:</u>		
Name:	Phone No:	Mobile No:
Section:	Work Centre:	Order No.
<u>Crane / Truck Required:</u>		
Crane: ▼	Truck Type: ▼	
Other:	Other:	
<u>Job Details:</u>		
Date:	Date:	Lift Weight:
Start	Start Time:	Lift Radius:
Finish	Finish Time:	Job Contact:
Duration:	Duration:	Phone S/Dial:
<input type="checkbox"/> Continuous Coverage Required	<input type="checkbox"/> 24 Hour Coverage Required Between Dates	<input type="checkbox"/> Earthworks Required for Access
<u>Notes:</u>		

Appendix H

Commissioning, Handover and Close Out (Tollgate 6) Templates

HAN001 – Detailed Works Procedure

DETAIL WORK PROCEDURE

Distribution List

Revision Details

REV	DATE	PREP'D BY	REV'D BY	APP'D BY	PAGE	DESCRIPTION
1.0						Issued for Comment/Approval

TABLE OF CONTENTS

- 1.0 PREPARATION**
- 2.0 SAFETY**
- 3.0 PROCEDURE**
 - 3.1 BELT SCRAPER REMOVAL**
 - 3.2 SPRAY BAR REMOVAL**
- 4.0 COMPLETION**
- 5.0 LIST OF DRAWINGS**
- 6.0 BILL OF MATERIALS**
- 7.0 MAINTENANCE REGIME**

1.0 PREPARATION**1.1 TOOLS & EQUIPMENT REQUIRED**

- Normal mechanical toolkit
- 2 x Hose Safety Clips
- 46mm AF Combination Spanner
- 1 x 1.5m Crow Bar

1.2 PERSONNEL REQUIRED

2 x Mechanical Tradespersons

1.3 Arrange for a meeting with all concerned and develop a JSA.

1.4 Request that the wash box launders and surrounding areas be cleaned prior to the shutdown.

Involve the belt scraper crew.

2.0 SAFETY

2.1 In addition to normal PPE, specific tasks may require additional protective equipment.

These to be identified when developing the JSA.

2.2 **Isolate the following:**

- P25 Drive
- P25 Brake

Place Isolation Tags

Isolation Procedure ISL-PME-G87-025

3.0 PROCEDURE

3.1 **BELT SCRAPER REMOVAL**

3.1.1 Isolate as per 2.4

3.1.2 **Hose out the belt wash station and launder if not completed prior to shutdown**

Use correct PPE if hosing down.

3.1.3 Release locking nuts on spring tensioners at each end of scraper.

3.1.4 Unscrew spring tensioning nut to release scraper pressure on belt.

3.1.5 Unscrew clamp pinch bolt on RH end of scraper

3.1.6 On LH end remove spring clip and locking pin.

3.1.7 Pulling on handle provided at LH end, slide scraper out of support frame. Replace or adjust scraper blades as required

3.1.8 To refit scraper follow reverse of procedure above

3.0 PROCEDURE (Cont)

3.1 SPRAY BARS REMOVAL

3.2.1 Check water valve on ground floor isolated

3.2.2 Bleed off any water pressure by opening ball valves fully at connection to wash box.

3.2.3 Disconnect Kamlock coupling from LH end of spraybar

3.2.4 Remove M16 bolts in cover plates at each end of spray bar

3.2.5 Spraybar can now be pulled out

3.2.6 Replace spray nozzles or adjust as required

3.2.7 Refitting spray bar is the reverse of the above procedure.

3.0 PROCEDURE (Cont)

4.0 COMPLETION

4.1 Remove Isolation Tags.

4.2 Turn on water isolation valve under P25 Belt Wash Station

4.3 Run P25 Conveyor, check water flow and spray effectiveness using adjustment on valves in manifold outside handrails on east side of P25 Belt Wash Station.

Check for:

- Correct scraping action
- Effective spray cleaning
- Water discharge into sump at base of P25

5.0 List Of Drawings

Drawing No	Rev	Title
087-M-2756	0	P25 BELTWASH STATION GENERAL ARRANGEMENT
087-M-2757	0	P25 BELTWASH STATION WASH BOX DETAILS
087-M-2758	0	P25 BELTWASH STATION WASH BOX DETAILS SHT 1 of 2
087-M-2759	0	P25 BELTWASH STATION WASH BOX DETAILS SHT 2 of 2
087-M-2760	0	P25 BELTWASH STATION BELTWASH STATION DETAIL OF DISCHARGE PIPE & CHUTE
087-M-2750	0	P25 BELTWASH STATION DETAILS OF PIPEWORK SHT 1 of 2
087-M-2751	0	P25 BELTWASH STATION DETAILS OF PIPEWORK SHT 2 of 2
087-S-0208	0	P25 BELTWASH STATION MAINTENANCE PLATFORM DETAILS
087-S-0209	0	P25 BELTWASH STATION MAINTENANCE PLATFORM DETAILS
087-S-0210	0	P25 BELTWASH STATION MAINTENANCE PLATFORM DETAILS

6.0 Bill of Materials

No Reqd	Mat/Stock No	Description	Supplier Model No	Supplier Details	Ref Drg
2		ESS Inline Premium Spring Tensioned Secondary Cleaners	No : 39705150	ESS Engineering Tel (08) 9370 3155 Fax (08) 9272 5130	087-M-2758
1		Prok Dia 152 Seies 54 Flat Return Idler with Retaining Plate	No : 54161-1350	Sandvik Tel (08) 9347 8500 Fax (08) 9347 8604	087-M-2758
1		ESS CYA Inspection Assembly	No : 2300912	ESS Engineering	087-M-2758
1		Dn 25 Screwed Ball Valve			087-M-2758
1		Dn 25 Screwed / Snap on Hose Connection			087-M-2758
5		Polyscreen PDS Spray Nozzles 3/4 inch PSP Thread		Spraying Systems Tel (08)9248 2734	087-M-2759
1		Wash Box Spray Bar Assembly -SS 316L	Fabricate from Drg		087-M-2759
2		100x6 Rubber Duro Skirt 2200 long			087-M-2760
5m		Dn 50 Mining Hose			087-M-2751
6		Dn 50 Mining Hose Clips			087-M-2751
3		Dn 50 Screwed Ball Valve			087-M-2751
1		DN200mm dia Linabrade Flexible Hose Table D Fl connections			087-M-2756
1		Kamlock Dn 40 Dhose Shank Adaptor			087-M-2570
1		Kamlock Dn 40 Femaiole BSPT Threaded Coupler			087-M-2570
1		Dn 40 Mining Hose			087-M-2570
1		Dn 40 Hose Clips			087-M-2570
1		Dn 40 Male Threaded Hose Adapter			087-M-2570
1		Dn 50 Screwed Solenoid Valve	050-136-01 XBHPDS - 48VDC Screwed	TYCO Flow Control Tel (08) 9302 8800 Fax (08) 9302 8811	087-M-2751

7.0 Maintenance Regime

Time Period	Description
Monthly	Hose out Wash Box and Launder
	Inspect Scraper Blades
	Adjust Scraper Blades ir Required
	Inspect Roller
	Adjust Roller if Required
	Check Operation of Sprays
	Check Isolation valve open
Annually	Check Roller - Replace if Worn
	Check Scrapers-Replace if worn
	Check Sprays-Replace if Reqd
	Cleanout with high pressure spray

HAN002 – Gsapp Equipment Input sheet**PROJECT MANAGEMENT FRAMEWORK****Commissioning Handover and Close out****GSAPP Equipment input sheet****<<Equipment Name>>**

Note: Equipment manuals, Bill of materials should be provided in link one format where possible.

Equipment Overview (*general introduction description of equipment*)

Manual attached
 Hardcopy
 Electronic

Bill of materials attached
 Hardcopy
 Electronic

Functional Location (<i>Where does this equip sit. Eg NP-SL-SL1</i>)	
Description (<i>eg shiploader 1</i>)	

General data

Object Type (????????)	
Weight	
Start up date (<i>When commissioned</i>)	

Manufacturer Data

Manufacturer	
Model number	
Manual Part No.	
Manual serial No.	
Manufacturer country	
Construction year/month	

Location data

Plant (<i>NP-5120</i>)	
Location (<i>Refer GSAPP officer</i>)	

Account Assignment

Cost Centre	
Responsibility	

Responsibilities

Planning Plant (<i>Discuss Line area SUPT</i>)	
Planner group (<i>Discuss Line area SUPT</i>)	
Main work centre (<i>Discuss Line area SUPT</i>)	
Catalogue profile (<i>Refer GSAPP officer</i>)	

Manufacturer Warranty

Begin warranty	
End Warranty	

Preventative Maintenance (*PM04's nominate weekly, monthly etc GSAPP generated PM's required*)

Occurrence	Activity

Spares List

Complete request for new inventory.

HAN003 – Notification of intent to Make Live

**NOTIFICATION OF INTENT TO
MAKE LIVE OR OPERATE PLANT
TEMPLATE**

Project Title:	
Project Manager:	Date:

Distribution

<u>Name</u>	<u>Company / Position</u>

The purpose of this form is to provide notice of our intention to energise, make live or operate plant or equipment as follows:

.....

.....

.....

.....

.....

It is our intention to energise, make live or operate the plant or equipment as indicated from:

Date: **Time:**

Signed: **Date:**

Project Representative

Note: Please display this notice on all office and crib hut safety notice boards and discuss it with supervisors, foreman, safety committee members and at your daily toolbox meetings.

HAN005 – Production/maintenance Facility Handover

PRODUCTION/MAINTENANCE FACILITIES HANDOVER

PROJECT: P25 Belt Wash Station

RESPONSIBLE OFFICER: C Lai / M Shenton

DESCRIPTION: Installation of Belt Wash Station at P 25,

Action by Engineering Services

PUNCH LIST ITEMS: See Attached List

DOCUMENTATION:

DRAWINGS: 087-M-2758; 087-M-2759; 087-M-2760; 087-M-2571; 087-M-2756;
087-M-0208; 087-M-2570; 087-M-0209; 087-M-0210; 087-M-2757

MANUALS/TRAINING: Spare Parts List; DWP

COMMISSIONING: Commissioning Completed 16-Sep-03

Refer Handover Checklist Sheet

GSAPP Equipment data sheet

OTHER ITEMS:

COMMENTS:

HANDOVER	ACCEPTED	
_____ Responsible Person	_____ Mech. Maint. Team Leader	
	ACCEPTED	
DATE: _____	_____ Elect. Maint. Team Leader	
	ACCEPTED	
	_____ Maintenance Supervisor	
	ACCEPTED	
	_____ Production Supervisor	

DISTRIBUTION: RESPONSIBLE PERSON/PROJECT FILE;
PRODUCTION; MAINTENANCE; MANAGER ENGINEERING SERVICES

PROJECT MANAGEMENT FRAMEWORK
Execution/ Operations, Handover & Close-Out

HAN006 – Project Close Out**PROJECT MANAGEMENT FRAMEWORK**

Commissioning, Handover & Close-Out

Project Close out**For****Project Name**

Project:			
Project Manager:		Champion:	
Client(s)		Date:	

Executive Summary:**Problem:**

-

Possible Solution:

-

Success criteria**Problem Solved and accepted by client**

-

Timing:

-

Cost:

-

Safety:

-

Benefits capture:

-

Project manager:

-

Project Background and Description (Describe the background of the project and give a brief description.)

Review Project success KPI's (Compare the project KPIs at authorisation).

<u>Item</u>	<u>Measure Of Success</u>	<u>Score</u> * —
<u>Safety</u>		
<u>Benefits</u> <u>Problem</u> <u>Solved</u>		
<u>Cost</u>		
<u>Schedule</u>		
<u>Acceptance</u> <u>by Client</u>		

* Achieved, Not Achieved, Expected, Not Expected, Unknown

“Critical Success Learnings”

(Comment on the major positive and negative influences on the project and their consequence to the project outcomes.)

Contacts

List the key contacts for the project including their phone numbers for further contact if necessary.

HAN007 – Project Close out Template

PROJECT MANAGEMENT FRAMEWORK

Operations, Handover & Close-Out

PROJECT CLOSE-OUT REVIEW

- What was done well?
- What was considered to be good practice &/or innovative?
- What could have been improved?
- What should be avoided in the future?
- What would you do differently on the next project?

Project Business Drivers

- What were the business drivers for the project (i.e. why did we undertake this project and what was the business rationale?)
- What was the projected ROC, NPV, IRR, payback, break-even Capex etc. for the project?
- How was the project financed?
- What were the base assumptions upon which the project was based? Are they still valid?

Project Organisation Structure

- Describe the project organisation structure.
- Was there an integrated project team?
- Was there a Management Steering Committee?
- What was the role of the “Customer” in the project?
- Was there early involvement (prior to submission) of key project team representatives and particularly the Project Manager?
- Was an Operations Representative part of the Project Team?

Project Execution Plan

- Was there a project execution/implementation plan?
- Were roles, responsibilities & authority levels defined?

Scope of Work

- Was there a written project Scope Of Work?

- Was there a combined scope of work & estimate document?
- Did the Scope Of Work change during the project? If so, what effect did any changes have?

Estimate

- What level of engineering was undertaken to develop the scope & estimate pre authorisation & was this adequate?
- Review the project estimate - did it include for escalation, and contingency? Was anything omitted?
- Were there any changes in the economic conditions over the duration of the project & how did this impact on the project?

Stakeholder Requirement Specification

- Were the customer's operational requirements documented?
- Was a Scope statement prepared?
- Was this document signed off?
- Did the scope statement require revision during the project?

Schedule

- Was there a project schedule developed prior to authorisation?
- What level of planning was undertaken?
- What level of time contingency was allowed?
- Was the schedule realistic?
- What scheduling tool was used?
- Was there a full time scheduler on the project?

Value Engineering

Contracting/Packaging Strategy

- Review the project implementation strategy used for the project.
- Did the packaging strategy suit the current local environment & market place?
- What contracting strategy was used, were the contracts lump sum, schedule of rates or other?

- Were bonus/penalties used? If so, how were the targets set & measured?

Value Improving Practices

- What Value Improving Practices (VIPs) were applied prior to project authorisation?
- What Value Improving Practices (VIPs) were applied during other project phases?

Contractor Management

- How were contractor's managed?
- How was contractor's progress assessed?
- Comment on the performance of the key contractors/suppliers. Are there any recommendations regarding the ongoing use of any contractor/supplier by the Company.

Risk Management

- Were formal risk assessment undertaken?
- Was the project subject to any external reviews (e.g. technical, commercial, safety, etc)?
- Did the project include the application of new technology?
- Were the in-house skills available to operate and maintain the technology?
- Was this a scaled up version of a smaller (pilot) plant?
- Was this a commercial application of an R&D effort?
- Was the risk review a value enhancing exercise?
- What level of Quality Assurance was applied to the project?

Change Management

- Was there a formal change control process?
- How were changes requested & assessed?
- What were the levels of change?
- How did changes impact on the project?

Contingency Management

- Were contingencies available for use by the project?
- How was contingency controlled?

- Other than the contingency allowance, were there any other allowances provided in the project estimate or during the course of the project?

Project Controls

- What cost control system was used?
- Was earned value assessed? If so, how was this measured/assessed & verified?
- Were project S curves developed & used? If so, what was the basis for the progress “S” curve/s?
- Were there regular project meetings? Were these minuted?
- Were regular project status reports prepared? How often? How widely were these circulated?
- Who undertook the contract administration function on the project?
- How was documentation control managed?
- What levels of project communication existed?
- Was project or contracts works insurance taken out on the project? How was it managed?

Cost Control & Reporting

- How often did costs get reviewed and re-forecast?
- Were there formal cost review meetings? If so, how regularly and who attended? Were these meetings minuted?
- How were variations identified and provisions made?
- What level of authority did the Project Manager have to place orders?
- What level of authority did the Site/Construction Manager have to place orders?

Project Reporting

- What reporting processes were used?
- How often was a project status report prepared and distributed?
- Who was the report distributed to?

Engineering

- What level of engineering was completed prior to project authorisation?
- How was the engineering undertaken (in-house, consultants, EPCM etc)?
- Were design reviews undertaken?
- Was there a design management plan?
- Did the client have involvement in the design process?
- Did the client sign off the layouts & concept drawings?
- Was there a design schedule?
- Was vendor supplied information received on schedule?

- What were the critical design issues?
- Were as-built drawings prepared and issued? What percentage of drawings were as-built? To what standard? Were the as-built drawings checked before handover?
- Were Operating & Maintenance (O&M) manuals prepared? Who prepared the manuals? To what standard? Was the Operations group satisfied with the quality of the manuals?

Procurement

- Was there a procurement plan?
- How was vendor supplied information handled in the contracts?
- What general conditions of contract were used?
- What level of special conditions of contract was applied?
- How were supplied items inspected?
- How were supplied items expedited?

Construction

- Who controlled the construction site?
- What was the level of manning?
- What level of QA was applied? Or was it QC?
- What hours of work were being undertaken?

Safety Management

- Was there a safety management plan?
- How were the safety statistics collected and reported?
- What was the project safety performance? And what were contributing factors to achieving this result?

Commissioning

- Who was responsible for carrying out the commissioning?
- How was commissioning funded? What allowance was made in the project estimate?
- Were the Operations and Maintenance personnel involved in commissioning?
- Were performance tests part of the commissioning procedure?
- What was the handover procedure for the plant?
- Comment on the transition from construction to operations.
- Comment on the ramp up to full production capacity and capability.

Production Ramp-up

- How long did the project team remain involved after production commenced?
- How was the plant signed –off and handed over after start-up?
- How did contractors get access to the plant after start-up to rectify defects?

Maintenance Considerations

- What involvement did the plant maintenance personnel have in the project?

Training

- Outline the approach taken to training and provide details as appropriate.

External Influences

- Detail any external influences that affected the project.

Escalation

- Detail the economic environment under which the project was executed and any effects (positive &/or negative) on the project.

Political influences

- Detail any political influences (either internal or external) that affected the project.

Rewards and Recognition

- Were the rewards and recognition commensurate with the input required from and the results achieved by the project participants?

HAN008 – Sample Newsletter

Welcome to Hedland Night

A fabulous night of entertainment and community sharing was experienced by thousands of local people on 9 May. Congratulations to Gaye Stephens and the organising committee and to all staff who helped make the event successful. Comments from members of the community were positive and very complimentary. The Centenary Park venue vindicated its choice and the removal of bunds, vegetation and fencing has immeasurably improved the appearance and functionality of the area. The behaviour of the large crowd was exemplary and the mood festive. A fitting celebration of the 30th anniversary of South Hedland.

HYPE Youth Project



Dog Prosecution

Council this week successfully prosecuted the owner of a dog which attacked a neighbour's child. A local solicitor was engaged to represent Council in the Magistrate's Court, as threats had been made by a witness in the case against the Senior Ranger, who normally undertakes these prosecutions. The prosecution resulted in the dog being declared a Dangerous Dog under the Dog Act, which imposes strict containment and management requirements on the owner, a fine of \$1,000 and costs of over \$5,000.

Events and Meetings

I have participated in the following events, meetings and discussions (apart from internal meetings with staff and/or Councillors) over the past 2 weeks:

- OH&S Committee
- with Black Rock Stakes organising committee members
- at presentation of composting/vermiculture proposal for recycling waste

- Welcome to Hedland Night
- with Pilbara/Gascoyne Health Service and Health Department regarding the future for residential aged care in Port Hedland
- HYPE Programme debrief at the South Hedland Shopping Centre
- Video conference with the PRC Regional Art Gallery Taskforce and consultants
- Pilbara Regional Managers Meeting by Dept of Indigenous Affairs and ATSIC
- Teleconference on selection of National Native Title Tribunal Presidential Consultant for development of ILUA with the Kariyarra people
- with BHP Billiton and sporting club representative reviewing progress with the Finucane Island Club restructure
- DIMIA Detention Centre Community Liaison Committee
- with Rio Tinto and Dampier Salt senior managers to discuss community contribution and performance matters.

Staff

Welcome to the following permanent and casual staff who will be commencing over the next few weeks:

- Yvonne Lawson, HACC Home Help (p/t)
- Lewis Kew Ming ('China') and Paul Pollack, Engineering Services Plant Operators
- Mal Blythe, Works Manager, from the City of Bendigo
- Terrence Headland, Sandra Agale, Tanya Drage, Shane Foley, James Wally and Karrin Sue, HYPE Youth Workers at South Hedland Shopping Centre

Congratulations also to Greg Hagan, who has been promoted to the Works Supervisor position.

Farewell to Inge Berezovsky, Library Technician, who has been one of the very welcoming and friendly people at the South Hedland Library for the past 3 years.

Tony Ford
Chief Executive Officer

HAN008 – Project Close out Request

PROJECT MANAGEMENT FRAMEWORK

Concept / Project Initiation

Project Close Out Request

Project: Name	
--------------------------	--

Project WBS Number:.....

Project Name:	
Project Manager:	
Date Approved:	

<u>Project Costs:</u>	
Approved Budget	
Project Total Costs	
Variance \$	
Variance %	

Note:

If Variance is greater than 10% a supplementary capital approval is required. Please submit a supplementary CAR prior to completion of this Close Out Request.

Final Cost Report

Attached is the Final Cost Report. Please review to ensure these items are an accurate reflection of the assets created by this project. Any additions or changes are to be clearly marked.

Date Assets first ready for use (use depreciation purposes):

Project Close Out Approval (signatures required)

Project Manager:

Date:

Department Manager:

Date:

Project Officer to advise Shared Services and Finance of Close Out Approval.
Date Advised: